



July 10, 2017

Mr. Scot Fitzgerald
CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352

Re: CHPRC SAF I17-008
Work Order: 425500
SDG: GEL425500

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 15, 2017. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4505.

Sincerely,

B Luthman
Brielle Luthman for
Heather Shaffer
Project Manager

Purchase Order: 300071 - 7H
Chain of Custody: I17-008-112, I17-008-170 and I17-008-172
Enclosures



Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....8

Data Review Qualifier Definitions.....13

Laboratory Certifications.....15

FID Diesel Range Organics Analysis.....17

 Case Narrative.....18

 Sample Data Summary.....22

 Quality Control Summary.....24

Metals Analysis.....28

 Case Narrative.....29

 Sample Data Summary.....33

 Quality Control Summary.....36

General Chem Analysis.....44

 Case Narrative.....45

 Sample Data Summary.....49

 Quality Control Summary.....52

Radiological Analysis.....56

 Case Narrative.....57

 Sample Data Summary.....61

 Quality Control Summary.....64

July 11, 2017

Case Narrative

July 11, 2017

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF I17-008
SDG: GEL425500

July 10, 2017

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt

The sample(s) arrived at GEL Laboratories, LLC, Charleston, South Carolina on June 15, 2017, for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Items of Note All efforts were made by the lab to meet any short hold times. Samples that were analyzed outside of the initial hold time but still within 2X hold time will be noted in the lab case narrative.

Sample Identification

The laboratory received the following samples:

<u>Laboratory Identification</u>	<u>Sample Description</u>
425500001	B39MH5
425500002	B39MJ1
425500003	B39MH4
425500004	B39MH6

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

July 11, 2017

Data Package

The enclosed data package contains the following sections: General Narrative, Chain of Custody and Supporting Documentation, and data from the following fractions: Diesel Range Organics, General Chemistry, Metals and Radiochemistry.

We certify that this package is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager (or designee) and the laboratory's client services representative as verified by their signatures on this report.


Brielle Luthman for
Heather Shaffer
Project Manager

July 11, 2017

Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL425500
Work Order #: 425500

Diesel Range Organics

Analysis of Diesel Range Organics by Flame Ionization Detector

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Laboratory Control Sample (LCS/LCSD) Recovery

Samples (See Below) did not meet CPRC specified limits (70-130%). However, the recoveries were within the lab's statistically derived limits.

Sample	Analyte	Value
1203814480 (LCS)	Diesel Range Organics	68* (70%-130%)

Matrix Spike (MS/MSD) Recovery Statement

The MS and/or MSD (See Below) did not meet spike recovery acceptance limits. The associated MS or MSD did not confirm. The LCS passed spike recovery limits. The poor extraction appeared to be isolated to the MS or MSD only and the data were reported.

Sample	Analyte	Value
1203814481 (B39M73MS)	Diesel Range Organics	45* (70%-130%)

MS/MSD Relative Percent Difference (RPD) Statement

The MS/MSD did not meet the RPD acceptance limits due to the large differences between the MS and MSD recoveries.

Sample	Analyte	Value
1203814481MS and 1203814482MSD (B39M73)	Diesel Range Organics	36* (0%-20%)

Miscellaneous Information

Manual Integrations

Samples 1203814480 (LCS) and 1203814481 (B39M73MS) required manual integration to correctly position the baseline as set in the calibration standard injections.

Metals

Determination of Metals by ICP

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Calibration Information

Instrument Calibration

The samples in this SDG contained sodium at concentrations more than ten times the amount present in the calibration blank, therefore the data was not adversely affected. 1203812383 (MB), 425500003 (B39MH4) and 425500004 (B39MH6).

CRDL/PQL Requirements

The PQL standard recoveries for SW846 6010C or 6010D met the control limits with the exception of potassium, sodium and zinc. Client sample concentrations were less than the MDL or greater than two times the PQL; therefore the data were not adversely affected. 425500003 (B39MH4) and 425500004 (B39MH6).

Quality Control (QC) Information

Method Blank (MB) Statement

The samples in this SDG contained analytes at concentrations more than ten times the amount present in the method blank (See Below), therefore the data was not adversely affected.

Sample	Analyte	Value
1203812383 (MB)	Sodium	See applicable report

General Chemistry

Ion Chromatography

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions

The following sample 425500001 (B39MH5) was diluted because target analyte concentrations exceeded the calibration range.

Analyte	425500
	001
Chloride	2X

Miscellaneous Information

Manual Integrations

Samples 1203812031 (B39MJ1DUP), 1203812032 (B39MJ1PS), 425500001 (B39MH5) and 425500002 (B39MJ1) were manually integrated to correctly position the baseline as set in the calibration standards.

Radiochemistry

SRISO_SEP_PRECIP_GPC: COMMON

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

QC Information

The sample and the duplicate, 1203815774 (Non SDG 425103020DUP), did not meet the relative percent difference requirement; however, they do meet the relative error ratio requirement with a value of 1.19.

Technical Information

Recounts

Samples 1203815774 (Non SDG 425103020DUP) and 425500003 (B39MH4) were verified by recounting at least five days from the separation date. The recounts are reported.

9310_ALPHABETA_GPC: COMMON

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

QC Information

The matrix spike and matrix spike duplicate, 1203825676 (B39N83MS) and 1203825677 (B39N83MSD) , did not meet the alpha relative percent difference requirement; however, they do meet the recovery requirement.

Technical Information

Sample Re-prep/Re-analysis

Sample 425500003 (B39MH4) was re-prepped due to low recovery. The re-analysis is being reported.

Gross Alpha/Beta Preparation Information

High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame

July 11, 2017

until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating.

Recounts

Samples 1203825676 (B39N83MS) and 1203825677 (B39N83MSD) were recounted due to high recovery. The recounts are reported. Sample 1203825675 (B39N83DUP) was recounted due to high relative percent difference/relative error ratio. The recount is reported.

Miscellaneous Information

Additional Comments

The matrix spike and matrix spike duplicate, 1203825676 (B39N83MS) and 1203825677 (B39N83MSD), aliquots were reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Chain of Custody and Supporting Documentation

July 11, 2017

CH2M Hill Plateau Remediation Company
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
 C.O.C. # **117-008-170**
 Page 1 of 1

425500
 Telephone No. 509-376-4650
 Contact/Requester Karen Waters-Husted
 Purchase Order/Charge Code 300071
 Sampling Origin Hanford Site
 Ice Chest No. ~~6-055-0038~~ 6-055-610
 Logbook No. HNF-N-506 92192
 Bill of Lading/Air Bill No. 779397818328
 Method of Shipment Commercial Carrier
 Offsite Property No. 8038
 Priority: 30 Days **PRIORITY**
 Total Activity Exemption: Yes No

POSSIBLE SAMPLE HAZARDS/REMARKS
 SPECIAL INSTRUCTIONS Hold Time
 N/A
 ** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

Sample No.	Filter	Date	Time	No./Type Container	Sample Analysis	Holding Time	Preservative
B39MH5	N	JUN 13 2017	1250	1x125-mL G/P	9056_ANIONS_IC: COMMON	48 Hours	Cool <=6C

Relinquished By Daniel Klug CHPRC	Print D. Klug	Sign	Date/Time JUN 13 2017	Received By SSU-1	Print	Sign	Date/Time JUN 13 2017	Matrix *
Relinquished By SSU-1	Print	Sign	Date/Time JUN 14 2017 0700	Received By Janelle Zunker CHPRC	Print	Sign	Date/Time JUN 14 2017 0700	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By Janelle Zunker CHPRC	Print	Sign	Date/Time JUN 14 2017 1400	Received By FED EX	Print	Sign	Date/Time JUN 14 2017 0700	DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
Relinquished By	Print	Sign	Date/Time FED EX	Received By Stacy Boone	Print	Sign	Date/Time 6/15/17 0900	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)							Date/Time

July 11, 2017

CH2MHH Plateau Remediation Company
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
 C.O.C. # **I17-008-112**
 Page 1 of 1

Collector: Daniel Klug CHPRC
 Contact/Requester: Karen Waters-Husted
 Telephone No. 509-376-4650
 SAF No. I17-008
 Sampling Origin: Hanford Site
 Purchase Order/Charge Code: 300071
 Project Title: 100-NR-2 GW-OU Monitoring Apatite B
 Logbook No. HNF-N-506 22/92
 Ice Chest No. 605-6010
 Shipped To (Lab): GEL Laboratories, LLC
 Method of Shipment: Commercial Carrier
 Bill of Lading/Air Bill No. 779397818328
 Protocol: CERCLA
 Priority: 30 Days
 SPECIAL INSTRUCTIONS: N/A
 Hold Time: **PRIORITY**
 Offsite Property No. 8038
 Total Activity Exemption: Yes No

POSSIBLE SAMPLE HAZARDS/REMARKS
 *** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39MH4	N	JUN 13 2017	1250	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2
B39MH4	N			1x1-L P	9310_ALPHABETA_GPC: COMMON	6 Months	HNO3 to pH <2
B39MH4	N			1x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2
B39MH4	N			4x1-L aG	WTPH_DIESEL: COMMON	14/40 Days	HCl to pH <2/Cool <=6C
B39MH6	Y			1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
Daniel Klug CHPRC	D. Klug		JUN 13 2017 1425	SSU-1	Janelle Zunker CHPRO		JUN 13 2017	S = Soil, SE = Sediment, SO = Solid, SL = Sludge, W = Water, O = Oil, A = Air, DS = Drum Solids, DL = Drum Liquids, T = Tissue, WI = Wipe, L = Liquid, V = Vegetation, X = Other
SSU-1			JUN 14 2017 0700	Janelle Zunker CHPRO	Janelle Zunker CHPRO		JUN 14 2017 0700	
Janelle Zunker CHPRC	J. Zunker		JUN 14 2017 1400	FEDEX	FEDEX		JUN 14 2017 0900	
Disposal Method (e.g., Return to customer, per lab procedure, used in process)	176 STACY BOONE 6/15/17							Disposed By
FINAL SAMPLE DISPOSITION	176 STACY BOONE 6/15/17							Date/Time

July 11, 2017



SAMPLE RECEIPT & REVIEW FORM

Client: CPRC		SDG/AR/COC/Work Order: 425500		
Received By: Stacy Boons		Date Received: 6-15-17		
Carrier and Tracking Number		Circle Applicable: <input checked="" type="checkbox"/> FedEx Express <input type="checkbox"/> FedEx Ground <input type="checkbox"/> UPS <input type="checkbox"/> Field Services <input type="checkbox"/> Courier <input type="checkbox"/> Other 7794 0470 3935 -1^c 7793 9781 8328 1^c 7794 0471 3579 -1^c		
Suspected Hazard Information		Yes	No	
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
COC/Samples marked or classified as radioactive?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is package, COC, and/or Samples marked HAZ?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. Hazard Class Shipped: _____ UN#: _____ Maximum Net Counts Observed (Observed Counts - Area Background Counts): <u>0</u> CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3 If yes, select Hazards below, and contact the GEL Safety Group. <input checked="" type="checkbox"/> PCB's <input type="checkbox"/> Flammable <input type="checkbox"/> Foreign Soil <input type="checkbox"/> RCRA <input type="checkbox"/> Asbestos <input type="checkbox"/> Beryllium <input type="checkbox"/> Other: _____				
Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: <u>Wet Ice</u> Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: _____
4 Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>1R3-17</u> Secondary Temperature Device Serial # (if Applicable): _____
5 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and Containers Affected: If Preservation added, Lot#: _____
7 Do any samples require Volatile Analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If Yes, Are Encores or Soil Kits present? Yes ___ No ___ (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes ___ No ___ N/A, (If unknown, select No) VOA vials free of headspace? Yes ___ No ___ N/A Sample ID's and containers affected: _____
8 Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected: _____
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected: _____
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected: _____
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected: _____
12 Are sample containers identifiable as GEL provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments (Use Continuation Form if needed):				

PM (or PMA) review: Initials DS Date 6/16/17 Page 1 of 1

GL-CHL-SR-001 Rev 5

Data Review Qualifier Definitions

Project Specific Qualifier Definitions for GEL Client Code: CPRC

Qualifier	Qualifier Definition	Department	Fraction
U	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.		
J	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate). Value is estimated	Organics	
P	Aroclor target analyte with greater than 25% difference between column analyses.	Organics	
C	Analyte has been confirmed by GC/MS analysis	Organics	Pesticide
B	The analyte was detected in both the associated QC blank and in the sample.	Organics	
E	Concentration exceeds the calibration range of the instrument	Organics	
A	The TIC is a suspected aldol-condensation product	Organics	Semi-Volatile
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
N	Spike Sample recovery is outside control limits.		
*	Duplicate analysis not within control limits	Inorganics	
>	Result greater than quantifiable range or greater than upper limit of the analysis range	General Chemistry	
Z	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
B	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	Inorganics	Metals
D	Results are reported from a diluted aliquot of sample.		
E	Reported value is estimated due to interferences. See comment in narrative.	Inorganics	Metals
M	Duplicate precision not met.	Inorganics	Metals
o	Analyte failed to recover within LCS limits (Organics only)	Organics	
S	Reported value determined by the Method of Standard Additions (MSA)	Inorganics	
T	Spike and/or spike duplicate sample recovery is outside control limits.	Organics	
W	Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.	Inorganics	
B	The associated QC sample blank has a result $\geq 2X$ the MDA and, after corrections, result is \geq MDA for this sample	Radiological	
Y	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
+	Correlation coefficient for Method of Standard Additions (MSA) is < 0.995	Inorganics	
B	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	General Chemistry	
C	Target analyte was detected in the sample and the associated blank. The associated blank concentration is \geq EQL or is > 5% of the measured concentration and/or decision level for associated samples.	Inorganics	Metals
C	Target analyte was detected in the sample and the associated blank. The associated blank concentration is \geq EQL or is > 5% of the measured concentration and/or decision level for associated samples.	General Chemistry	
<	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide	General Chemistry	
UX	Gamma Spectroscopy--Uncertain identification	Radiological	

Laboratory Certifications

List of current GEL Certifications as of 10 July 2017

State	Certification
Alaska	UST-0110
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA170010
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122017-1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-17-12
Utah NELAP	SC000122017-22
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

FID Diesel Range Organics Analysis

Case Narrative

July 11, 2017

Diesel Range Organics
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL425500
Work Order #: 425500

Product: Analysis of Diesel Range Organics by Flame Ionization Detector

Analytical Method: NWTPH-Dx

Analytical Procedure: GL-OA-E-003 REV# 29

Analytical Batch: 1675332

Preparation Method: SW846 3535A

Preparation Procedure: GL-OA-E-013 REV# 31

Preparation Batch: 1675331

The following samples were analyzed using the above methods and analytical procedure(s).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
425500003	B39MH4
1203814479	Method Blank (MB)
1203814480	Laboratory Control Sample (LCS)
1203814481	425388007(B39M73) Matrix Spike (MS)
1203814482	425388007(B39M73) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Laboratory Control Sample (LCS/LCSD) Recovery

Samples (See Below) did not meet CPRC specified limits (70-130%). However, the recoveries were within the lab's statistically derived limits.

Sample	Analyte	Value
1203814480 (LCS)	Diesel Range Organics	68* (70%-130%)

Matrix Spike (MS/MSD) Recovery Statement

The MS (See Below) did not meet spike recovery acceptance limits due to isolated extraction efficiency issue.

Sample	Analyte	Value
1203814481 (B39M73MS)	Diesel Range Organics	45* (70%-130%)

MS/MSD Relative Percent Difference (RPD) Statement

The MS/MSD did not meet the RPD acceptance limits due to the large differences between the MS and MSD

July 11, 2017

recoveries.

Sample	Analyte	Value
1203814481MS and 1203814482MSD (B39M73)	Diesel Range Organics	36* (0%-20%)

Miscellaneous Information

Manual Integrations

Samples 1203814480 (LCS) and 1203814481 (B39M73MS) required manual integration to correctly position the baseline as set in the calibration standard injections.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

July 11, 2017

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

**Qualifier Definition Report
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL425500 GEL Work Order: 425500

The Qualifiers in this report are defined as follows:

T Spike and/or spike duplicate sample recovery is outside control limits.

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

DL Indicates that sample is diluted.

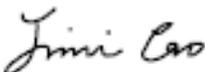
RA Indicates that sample is re-analyzed without re-extraction.

RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: 

Name: Jimin Cao

Date: 10 JUL 2017

Title: Data Validator

Sample Data Summary

July 11, 2017

FID Diesel Range Organics

Page 1 of 1

Certificate of Analysis

Sample Summary

SDG Number: GEL425500	Date Collected: 06/13/2017 12:50	Matrix: WATER
Lab Sample ID: 425500003	Date Received: 06/15/2017 09:00	
Client ID: B39MH4	Client: CPRC001	Project: CPRC0117008
Batch ID: 1675332	Method: NWTPH-Dx	SOP Ref: GL-OA-E-003
Run Date: 06/20/2017 22:27	Inst: FID7.I	Dilution: 1
Prep Date: 06/20/2017 09:35	Analyst: LXA1	Inj. Vol: 1 uL
Data File: 061917-KERO-MO\F7F1951.D	Aliquot: 1000 mL	Final Volume: 1 mL
	Column: DB-5ms	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
68334-30-5	Diesel Range Organics	TU	50.0	ug/L	50.0	200

Quality Control Summary

July 11, 2017

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: June 22, 2017

Page 1 of 2

CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 425500

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Diesel Range Organics											
Batch	1675332										
QC1203814480	LCS										
Diesel Range Organics	2000			1360	ug/L		68*	(70%-130%)	LXA1	06/20/17	19:11
**o-Terphenyl	20.0			15.0	ug/L		75	(60%-140%)			
QC1203814479	MB										
Diesel Range Organics			U	50.0	ug/L					06/20/17	18:31
**o-Terphenyl	20.0			13.8	ug/L		69	(60%-140%)			
QC1203814481	425388007	MS									
Diesel Range Organics	2000	T	695	T	1600	ug/L	45*	(70%-130%)		06/20/17	20:29
**o-Terphenyl	20.0		13.8		13.3	ug/L	67	(60%-140%)			
QC1203814482	425388007	MSD									
Diesel Range Organics	2000	T	695		2290	ug/L	36*	80	(0%-20%)	06/20/17	21:08
**o-Terphenyl	20.0		13.8		15.9	ug/L	79	(60%-140%)			

Notes:

The Qualifiers in this report are defined as follows:

- A The TIC is a suspected aldol-condensation product
- B The analyte was detected in both the associated QC blank and in the sample.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate). Value is estimated
- N Spike Sample recovery is outside control limits.
- P Aroclor target analyte with greater than 25% difference between column analyses.

July 11, 2017

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QC Summary

Workorder: 425500

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
T	Spike and/or spike duplicate sample recovery is outside control limits.										
U	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.										
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Y	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Z	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
o	Analyte failed to recover within LCS limits (Organics only)										

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
 ^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.
 For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

FID Diesel Range Organics
July 11, 2017

Surrogate Recovery Report

SDG Number: GEL425500

Matrix Type: LIQUID

Sample ID	Client ID	OTP %REC
1203814479	MB for batch 1675331	69
1203814480	LCS for batch 1675331	75
1203814481	B39M73MS	67
1203814482	B39M73MSD	79
425500003	B39MH4	65

Surrogate

OTP = o-Terphenyl

Acceptance Limits

(60%-140%)

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

Metals Analysis

Case Narrative

July 11, 2017

Metals

Technical Case Narrative

CH2M Hill Plateau Remediation Company (CPRC)

SDG #: GEL425500

Work Order #: 425500

Product: Determination of Metals by ICP

Analytical Method: SW846 3005A/6010D

Analytical Procedure: GL-MA-E-013 REV# 28

Analytical Batch: 1674447

Preparation Method: SW846 3005A

Preparation Procedure: GL-MA-E-006 REV# 13

Preparation Batch: 1674446

The following samples were analyzed using the above methods and analytical procedure(s).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
425500003	B39MH4
425500004	B39MH6
1203812383	Method Blank (MB)ICP
1203812384	Laboratory Control Sample (LCS)
1203812387	425500003(B39MH4L) Serial Dilution (SD)
1203812385	425500003(B39MH4S) Matrix Spike (MS)
1203812386	425500003(B39MH4SD) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Calibration Information

Instrument Calibration

The samples in this SDG contained sodium at concentrations more than ten times the amount present in the calibration blank, therefore the data was not adversely affected. 1203812383 (MB), 425500003 (B39MH4) and 425500004 (B39MH6).

CRDL/PQL Requirements

The PQL standard recoveries for SW846 6010C or 6010D met the control limits with the exception of potassium, sodium and zinc. Client sample concentrations were less than the MDL or greater than two times the PQL; therefore the data were not adversely affected. 425500003 (B39MH4) and 425500004 (B39MH6).

Quality Control (QC) Information

Method Blank (MB) Statement

The samples in this SDG contained analytes at concentrations more than ten times the amount present in the method blank (See Below), therefore the data was not adversely affected.

July 11, 2017

Sample	Analyte	Value
1203812383 (MB)	Sodium	See applicable report

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

July 11, 2017

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**Qualifier Definition Report
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL425500 GEL Work Order: 425500

The Qualifiers in this report are defined as follows:

- * Duplicate analysis not within control limits
- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- C Target analyte was detected in the sample and the associated blank. The associated blank concentration is \geq EQL or is $> 5\%$ of the measured concentration and/or decision level for associated samples.
- D Results are reported from a diluted aliquot of sample.
- N Spike Sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: 

Name: Nik-Cole Elmore

Date: 28 JUN 2017

Title: Data Validator

Sample Data Summary

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL425500

CONTRACT: CPRC0117008

METHOD TYPE: SW846

SAMPLE ID: 425500003

BASIS: As Received

DATE COLLECTED 13-JUN-17

CLIENT ID: B39MH4

LEVEL: Low

DATE RECEIVED 15-JUN-17

MATRIX: WATER

%SOLIDS: 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-36-0	Antimony	3.5	ug/L	U	3.5	10	10	1	P	HSC	06/27/17 08:28	062717-1	1674447
7440-38-2	Arsenic	8.25	ug/L	B	5	30	30	1	P	HSC	06/27/17 08:28	062717-1	1674447
7440-39-3	Barium	8.67	ug/L		1	5	5	1	P	HSC	06/27/17 08:28	062717-1	1674447
7440-43-9	Cadmium	1	ug/L	U	1	5	5	1	P	HSC	06/27/17 08:28	062717-1	1674447
7440-70-2	Calcium	26600	ug/L		50	200	200	1	P	HSC	06/27/17 08:28	062717-1	1674447
7440-47-3	Chromium	3.6	ug/L	B	1	5	5	1	P	HSC	06/27/17 08:28	062717-1	1674447
7440-48-4	Cobalt	1	ug/L	U	1	5	5	1	P	HSC	06/27/17 08:28	062717-1	1674447
7440-50-8	Copper	3	ug/L	U	3	10	10	1	P	HSC	06/27/17 08:28	062717-1	1674447
7439-89-6	Iron	30	ug/L	U	30	100	100	1	P	HSC	06/27/17 08:28	062717-1	1674447
7439-95-4	Magnesium	6250	ug/L		110	300	300	1	P	HSC	06/27/17 08:28	062717-1	1674447
7439-96-5	Manganese	11.4	ug/L		2	10	10	1	P	HSC	06/27/17 08:28	062717-1	1674447
7440-02-0	Nickel	1.5	ug/L	U	1.5	5	5	1	P	HSC	06/27/17 08:28	062717-1	1674447
7440-09-7	Potassium	1560	ug/L		50	150	150	1	P	HSC	06/27/17 08:28	062717-1	1674447
7440-22-4	Silver	1	ug/L	U	1	5	5	1	P	HSC	06/27/17 08:28	062717-1	1674447
7440-23-5	Sodium	18700	ug/L		100	300	300	1	P	HSC	06/27/17 12:36	062717-3	1674447
7440-62-2	Vanadium	11.3	ug/L		1	5	5	1	P	HSC	06/27/17 08:28	062717-1	1674447
7440-66-6	Zinc	3.3	ug/L	U	3.3	10	10	1	P	HSC	06/27/17 12:36	062717-3	1674447

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1674447	1674446	SW846 3005A	50	mL	50	mL	06/16/17	SXW1

***Analytical Methods:**

P SW846 3005A/6010D

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL425500

CONTRACT: CPRC0117008

METHOD TYPE: SW846

SAMPLE ID: 425500004

BASIS: As Received

DATE COLLECTED 13-JUN-17

CLIENT ID: B39MH6

LEVEL: Low

DATE RECEIVED 15-JUN-17

MATRIX: WATER

%SOLIDS: 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-36-0	Antimony	3.5	ug/L	U	3.5	10	10	1	P	HSC	06/27/17 08:41	062717-1	1674447
7440-38-2	Arsenic	8.34	ug/L	B	5	30	30	1	P	HSC	06/27/17 08:41	062717-1	1674447
7440-39-3	Barium	8.17	ug/L		1	5	5	1	P	HSC	06/27/17 08:41	062717-1	1674447
7440-43-9	Cadmium	1	ug/L	U	1	5	5	1	P	HSC	06/27/17 08:41	062717-1	1674447
7440-70-2	Calcium	27100	ug/L		50	200	200	1	P	HSC	06/27/17 08:41	062717-1	1674447
7440-47-3	Chromium	3.41	ug/L	B	1	5	5	1	P	HSC	06/27/17 08:41	062717-1	1674447
7440-48-4	Cobalt	1	ug/L	U	1	5	5	1	P	HSC	06/27/17 08:41	062717-1	1674447
7440-50-8	Copper	3	ug/L	U	3	10	10	1	P	HSC	06/27/17 08:41	062717-1	1674447
7439-89-6	Iron	30	ug/L	U	30	100	100	1	P	HSC	06/27/17 08:41	062717-1	1674447
7439-95-4	Magnesium	6350	ug/L		110	300	300	1	P	HSC	06/27/17 08:41	062717-1	1674447
7439-96-5	Manganese	2	ug/L	U	2	10	10	1	P	HSC	06/27/17 08:41	062717-1	1674447
7440-02-0	Nickel	1.5	ug/L	U	1.5	5	5	1	P	HSC	06/27/17 08:41	062717-1	1674447
7440-09-7	Potassium	1580	ug/L		50	150	150	1	P	HSC	06/27/17 08:41	062717-1	1674447
7440-22-4	Silver	1	ug/L	U	1	5	5	1	P	HSC	06/27/17 08:41	062717-1	1674447
7440-23-5	Sodium	18700	ug/L		100	300	300	1	P	HSC	06/27/17 12:48	062717-3	1674447
7440-62-2	Vanadium	10.8	ug/L		1	5	5	1	P	HSC	06/27/17 08:41	062717-1	1674447
7440-66-6	Zinc	3.3	ug/L	U	3.3	10	10	1	P	HSC	06/27/17 12:48	062717-3	1674447

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1674447	1674446	SW846 3005A	50	mL	50	mL	06/16/17	SXW1

***Analytical Methods:**

P SW846 3005A/6010D

Quality Control Summary

July 11, 2017

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: June 28, 2017

CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 425500

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1674447										
QC1203812384	LCS										
Antimony	500			476	ug/L		95.3	(80%-120%)	HSC	06/27/17	08:25
Arsenic	500			481	ug/L		96.3	(80%-120%)			
Barium	500			476	ug/L		95.3	(80%-120%)			
Cadmium	500			474	ug/L		94.9	(80%-120%)			
Calcium	5000			4780	ug/L		95.6	(80%-120%)			
Chromium	500			472	ug/L		94.4	(80%-120%)			
Cobalt	500			483	ug/L		96.7	(80%-120%)			
Copper	500			471	ug/L		94.2	(80%-120%)			
Iron	5000			4870	ug/L		97.4	(80%-120%)			
Magnesium	5000			5010	ug/L		100	(80%-120%)			
Manganese	500			473	ug/L		94.6	(80%-120%)			
Nickel	500			486	ug/L		97.1	(80%-120%)			
Potassium	5000			4770	ug/L		95.4	(80%-120%)			

July 11, 2017

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 425500

Page 2 of 7

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1674447										
Silver	500			464	ug/L		92.9	(80%-120%)	HSC	06/27/17	08:25
Sodium	5000			5050	ug/L		101	(80%-120%)		06/27/17	12:32
Vanadium	500			473	ug/L		94.6	(80%-120%)		06/27/17	08:25
Zinc	500			473	ug/L		94.6	(80%-120%)		06/27/17	12:32
QC1203812383	MB										
Antimony			U	3.50	ug/L					06/27/17	08:22
Arsenic			U	5.00	ug/L						
Barium			U	1.00	ug/L						
Cadmium			U	1.00	ug/L						
Calcium			U	50.0	ug/L						
Chromium			U	1.00	ug/L						
Cobalt			U	1.00	ug/L						
Copper			U	3.00	ug/L						
Iron			U	30.0	ug/L						
Magnesium			U	110	ug/L						
Manganese			U	2.00	ug/L						

July 11, 2017

GEL LABORATORIES LLC

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QC Summary

Workorder: 425500

Page 3 of 7

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1674447										
Nickel			U	1.50	ug/L				HSC	06/27/17	08:22
Potassium			U	50.0	ug/L						
Silver			U	1.00	ug/L						
Sodium				175	ug/L					06/27/17	12:29
Vanadium			U	1.00	ug/L					06/27/17	08:22
Zinc			U	3.30	ug/L					06/27/17	12:29
QC1203812385 425500003 MS											
Antimony	500	U	3.50	482	ug/L		96.4	(75%-125%)		06/27/17	08:31
Arsenic	500	B	8.25	501	ug/L		98.5	(75%-125%)			
Barium	500		8.67	486	ug/L		95.4	(75%-125%)			
Cadmium	500	U	1.00	474	ug/L		94.9	(75%-125%)			
Calcium	5000		26600	31700	ug/L		N/A	(75%-125%)			
Chromium	500	B	3.60	472	ug/L		93.6	(75%-125%)			
Cobalt	500	U	1.00	471	ug/L		94.2	(75%-125%)			
Copper	500	U	3.00	476	ug/L		95.1	(75%-125%)			
Iron	5000	U	30.0	4830	ug/L		96.4	(75%-125%)			

July 11, 2017

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QC Summary

Workorder: 425500

Page 4 of 7

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP												
Batch	1674447											
Magnesium	5000		6250		11100	ug/L		97.1	(75%-125%)	HSC	06/27/17	08:31
Manganese	500		11.4		479	ug/L		93.5	(75%-125%)			
Nickel	500	U	1.50		471	ug/L		94.2	(75%-125%)			
Potassium	5000		1560		6350	ug/L		95.8	(75%-125%)			
Silver	500	U	1.00		469	ug/L		93.8	(75%-125%)			
Sodium	5000	C	18700		24100	ug/L		108	(75%-125%)		06/27/17	12:39
Vanadium	500		11.3		494	ug/L		96.6	(75%-125%)		06/27/17	08:31
Zinc	500	U	3.30		477	ug/L		95.3	(75%-125%)		06/27/17	12:39
QC1203812386	425500003 MSD											
Antimony	500	U	3.50		479	ug/L	0.624	95.8	(0%-20%)		06/27/17	08:34
Arsenic	500	B	8.25		492	ug/L	1.74	96.8	(0%-20%)			
Barium	500		8.67		479	ug/L	1.36	94.1	(0%-20%)			
Cadmium	500	U	1.00		468	ug/L	1.3	93.6	(0%-20%)			
Calcium	5000		26600		31700	ug/L	0.0221	N/A	(0%-20%)			
Chromium	500	B	3.60		469	ug/L	0.642	93	(0%-20%)			
Cobalt	500	U	1.00		467	ug/L	0.797	93.4	(0%-20%)			

July 11, 2017

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QC Summary

Workorder: 425500

Page 5 of 7

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1674447										
Copper	500	U	3.00	471	ug/L	1.17	94	(0%-20%)	HSC	06/27/17	08:34
Iron	5000	U	30.0	4830	ug/L	0.00828	96.4	(0%-20%)			
Magnesium	5000		6250	11100	ug/L	0.108	96.9	(0%-20%)			
Manganese	500		11.4	474	ug/L	1.12	92.4	(0%-20%)			
Nickel	500	U	1.50	468	ug/L	0.622	93.6	(0%-20%)			
Potassium	5000		1560	6350	ug/L	0.0362	95.8	(0%-20%)			
Silver	500	U	1.00	461	ug/L	1.69	92.3	(0%-20%)			
Sodium	5000	C	18700	23800	ug/L	1.64	100	(0%-20%)		06/27/17	12:42
Vanadium	500		11.3	488	ug/L	1.25	95.4	(0%-20%)		06/27/17	08:34
Zinc	500	U	3.30	447	ug/L	6.51	89.3	(0%-20%)		06/27/17	12:42
QC1203812387 425500003 SDILT											
Antimony		U	0.149	BD	-4.03	ug/L	N/A	(0%-20%)		06/27/17	08:37
Arsenic		B	8.25	DU	25.0	ug/L	N/A	(0%-20%)			
Barium			8.67	BD	1.83	ug/L	5.82	(0%-20%)			
Cadmium		U	0.123	DU	5.00	ug/L	N/A	(0%-20%)			
Calcium			26600	D	5300	ug/L	.497	(0%-20%)			

July 11, 2017

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QC Summary

Workorder: 425500

Page 6 of 7

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1674447										
Chromium	B	3.60	DU	5.00	ug/L	N/A		(0%-20%)	HSC	06/27/17	08:37
Cobalt	U	0.166	DU	5.00	ug/L	N/A		(0%-20%)			
Copper	U	0.450	DU	15.0	ug/L	N/A		(0%-20%)			
Iron	U	9.60	DU	150	ug/L	N/A		(0%-20%)			
Magnesium		6250	D	1280	ug/L	2.5		(0%-20%)			
Manganese		11.4	BD	2.32	ug/L	1.58		(0%-20%)			
Nickel	U	0.333	DU	7.50	ug/L	N/A		(0%-20%)			
Potassium		1560	D	321	ug/L	2.97		(0%-20%)			
Silver	U	0.0946	DU	5.00	ug/L	N/A		(0%-20%)			
Sodium	C	18700	D	3840	ug/L	2.42		(0%-20%)		06/27/17	12:45
Vanadium		11.3	BD	2.50	ug/L	10.6		(0%-20%)		06/27/17	08:37
Zinc	U	0.891	DU	16.5	ug/L	N/A		(0%-20%)		06/27/17	12:45

Notes:

The Qualifiers in this report are defined as follows:

- * Duplicate analysis not within control limits
- + Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- C Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.
- D Results are reported from a diluted aliquot of sample.

July 11, 2017

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QC Summary

Workorder: 425500

Page 7 of 7

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
E	Reported value is estimated due to interferences. See comment in narrative.										
M	Duplicate precision not met.										
N	Spike Sample recovery is outside control limits.										
S	Reported value determined by the Method of Standard Additions (MSA)										
U	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.										
W	Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.										
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Y	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Z	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
 ^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
 * Indicates that a Quality Control parameter was not within specifications.
 For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL425500
Work Order #: 425500

Product: Ion Chromatography

Analytical Method: 9056_ANIONS_IC

Analytical Procedure: GL-GC-E-086 REV# 25

Analytical Batch: 1674284

The following samples were analyzed using the above methods and analytical procedure(s).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
425500001	B39MH5
425500002	B39MJ1
1203812029	Method Blank (MB)
1203812030	Laboratory Control Sample (LCS)
1203812031	425500002(B39MJ1) Sample Duplicate (DUP)
1203812032	425500002(B39MJ1) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions

The following sample 425500001 (B39MH5) was diluted because target analyte concentrations exceeded the calibration range. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	425500
	001
Chloride	2X

Miscellaneous Information

Manual Integrations

Samples 1203812031 (B39MJ1DUP), 1203812032 (B39MJ1PS), 425500001 (B39MH5) and 425500002 (B39MJ1) were manually integrated to correctly position the baseline as set in the calibration standards.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the

July 11, 2017

requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

July 11, 2017

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**Qualifier Definition Report
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL425500 GEL Work Order: 425500

The Qualifiers in this report are defined as follows:

B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).

D Results are reported from a diluted aliquot of sample.

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: 

Name: Kristen Mizzell

Date: 26 JUN 2017

Title: Analyst I

Sample Data Summary

Certificate of Analysis

Report Date: June 26, 2017

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF I17-008

Client Sample ID: B39MH5	Project: CPRC0I17008
Sample ID: 425500001	Client ID: CPRC001
Matrix: WATER	
Collect Date: 13-JUN-17 12:50	
Receive Date: 15-JUN-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: COMMON "As Received"												
Fluoride	B	60.5	33.0	500	ug/L		1	MXL2	06/15/17	1054	1674284	1
Nitrate-N		1070	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Sulfate		11100	133	500	ug/L		1					
Chloride	D	10100	134	400	ug/L		2	MXL2	06/15/17	1318	1674284	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	9056_ANIONS_IC	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

July 11, 2017

Certificate of Analysis

Report Date: June 26, 2017

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF I17-008

Client Sample ID: B39MJ1	Project: CPRC0I17008
Sample ID: 425500002	Client ID: CPRC001
Matrix: WATER	
Collect Date: 13-JUN-17 13:34	
Receive Date: 15-JUN-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: COMMON "As Received"												
Chloride		5000	67.0	200	ug/L		1	MXL2	06/15/17	1123	1674284	1
Fluoride	B	47.5	33.0	500	ug/L		1					
Nitrate-N		598	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Sulfate		8870	133	500	ug/L		1					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

Quality Control Summary

July 11, 2017

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QC Summary

Report Date: June 26, 2017

Page 1 of 3

CH2MHill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 425500

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography											
Batch	1674284										
QC1203812031	425500002	DUP									
Chloride		5000		5000	ug/L	0.026		(0%-20%)	MXL2	06/15/17	11:51
Fluoride	B	47.5	B	50.0	ug/L	5.13	^	(+/-500)			
Nitrate-N		598		601	ug/L	0.6	^	(+/-250)			
Nitrite-N	U	33.0	U	33.0	ug/L	N/A					
Sulfate		8870		8890	ug/L	0.262		(0%-20%)			
QC1203812030	LCS										
Chloride	5000			4810	ug/L			96.1	(80%-120%)	06/15/17	14:16
Fluoride	2500			2490	ug/L			99.7	(80%-120%)		
Nitrate-N	2500			2460	ug/L			98.3	(80%-120%)		
Nitrite-N	2500			2490	ug/L			99.5	(80%-120%)		
Sulfate	10000			9990	ug/L			99.9	(80%-120%)		
QC1203812029	MB										
Chloride			U	67.0	ug/L					06/15/17	13:47
Fluoride			U	33.0	ug/L						
Nitrate-N			U	33.0	ug/L						

July 11, 2017

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QC Summary

Workorder: 425500

Page 2 of 3

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography											
Batch	1674284										
Nitrite-N			U	33.0	ug/L				MXL2	06/15/17	13:47
Sulfate			U	133	ug/L						
QC1203812032 425500002 PS											
Chloride	5.00	5.00		10.5	mg/L		109	(75%-125%)		06/15/17	12:20
Fluoride	2.50	B	0.0475	2.46	mg/L		96.4	(75%-125%)			
Nitrate-N	2.50		0.598	3.04	mg/L		97.7	(75%-125%)			
Nitrite-N	2.50	U	0.00	2.44	mg/L		97.5	(75%-125%)			
Sulfate	10.0		8.87	19.5	mg/L		106	(75%-125%)			

Notes:

The Qualifiers in this report are defined as follows:

- < Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide
- > Result greater than quantifiable range or greater than upper limit of the analysis range
- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- C Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.
- D Results are reported from a diluted aliquot of sample.
- N Spike Sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

July 11, 2017

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QC Summary

Workorder: 425500

Page 3 of 3

Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
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N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Radiological Analysis

Case Narrative

July 11, 2017

Radiochemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL425500
Work Order #: 425500

Product: SRISO_SEP_PRECIP_GPC: COMMON

Analytical Method: SRISO_SEP_PRECIP_GPC

Analytical Procedure: GL-RAD-A-004 REV# 18

Analytical Batch: 1675923

The following samples were analyzed using the above methods and analytical procedure(s).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
425500003	B39MH4
1203815773	Method Blank (MB)
1203815774	425103020(NonSDG) Sample Duplicate (DUP)
1203815775	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

QC Information

All of the QC samples meet the required acceptance limits with the following exceptions: The sample and the duplicate, 1203815774 (Non SDG 425103020DUP), did not meet the relative percent difference requirement; however, they do meet the relative error ratio requirement with a value of 1.19.

Technical Information

Recounts

Samples 1203815774 (Non SDG 425103020DUP) and 425500003 (B39MH4) were verified by recounting at least five days from the separation date. The recounts are reported.

Product: 9310_ALPHABETA_GPC: COMMON

Analytical Method: 9310_ALPHABETA_GPC

Analytical Procedure: GL-RAD-A-001 REV# 19

Analytical Batch: 1680213

The following samples were analyzed using the above methods and analytical procedure(s).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
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July 11, 2017

425500003	B39MH4
1203825674	Method Blank (MB)
1203825675	426412007(B39N83) Sample Duplicate (DUP)
1203825676	426412007(B39N83) Matrix Spike (MS)
1203825677	426412007(B39N83) Matrix Spike Duplicate (MSD)
1203825678	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

QC Information

All of the QC samples meet the required acceptance limits with the following exceptions: The matrix spike and matrix spike duplicate, 1203825676 (B39N83MS) and 1203825677 (B39N83MSD), did not meet the alpha relative percent difference requirement; however, they do meet the relative error ratio and spike recovery requirements.

Technical Information

Sample Re-prep/Re-analysis

Sample 425500003 (B39MH4) was re-prepped due to low recovery. The re-analysis is being reported.

Gross Alpha/Beta Preparation Information

High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating.

Recounts

Samples 1203825676 (B39N83MS) and 1203825677 (B39N83MSD) were recounted due to high recovery. The recounts are reported. Sample 1203825675 (B39N83DUP) was recounted due to high relative percent difference/relative error ratio. The recount is reported.

Miscellaneous Information

Additional Comments

The matrix spike and matrix spike duplicate, 1203825676 (B39N83MS) and 1203825677 (B39N83MSD), aliquots were reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

July 11, 2017

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**Qualifier Definition Report
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL425500 GEL Work Order: 425500

The Qualifiers in this report are defined as follows:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: 

Name: Kate Gellatly

Date: 10 JUL 2017

Title: Analyst I

Sample Data Summary

July 11, 2017
Rad

**Certificate of Analysis
Sample Summary**

SDG Number: GEL425500	Client: CPRC001	Project: CPRC0117008
Lab Sample ID: 425500003	Date Collected: 06/13/2017 12:50	Matrix: WATER
	Date Received: 06/15/2017 09:00	
Client ID: B39MH4	Method: SRISO_SEP_PRECIP_GPC	Prep Basis: "As Received"
Batch ID: 1675923	Analyst: JXB7	SOP Ref: GL-RAD-A-004
Run Date: 07/05/2017 08:00	Aliquot: 300 mL	Instrument: PIC4B
Data File: S1675923r1.xls	Prep Method: EPA 905.0 Modified/DOE RP5	Count Time: 60 min
Prep Batch: 1675923		
Prep Date: 06/28/2017 10:54		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90		4.17	pCi/L	+/-0.994	1.20	1.09	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	5.50	7.75	mg	71	(40%-110%)

Comments:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
 TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
 The MDC is a sample specific MDC.

July 11, 2017
Rad

**Certificate of Analysis
Sample Summary**

SDG Number: GEL425500	Client: CPRC001	Project: CPRC0117008
Lab Sample ID: 425500003	Date Collected: 06/13/2017 12:50	Matrix: WATER
	Date Received: 06/15/2017 09:00	
Client ID: B39MH4		Prep Basis: "As Received"
Batch ID: 1680213	Method: 9310_ALPHABETA_GPC	SOP Ref: GL-RAD-A-001
Run Date: 07/08/2017 11:05	Analyst: LXB3	Instrument: LB4100A3
Data File: AB1680213r.xls	Aliquot: 150 mL	Count Time: 210 min
Prep Batch: 1680213	Prep Method: EPA 900.0/SW846 9310	
Prep Date: 07/07/2017 06:43		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
12587-46-1	Alpha ALPHA	U	-0.295	pCi/L	+/-0.818	0.818	1.71	3.00
12587-47-2	Beta BETA		13.2	pCi/L	+/-1.62	2.71	1.88	4.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error. TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma). The MDC is a sample specific MDC.

Quality Control Summary

GEL LABORATORIES LLC

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QC Summary

Report Date: July 10, 2017
Page 1 of 3

Client : CH2M Hill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Workorder: 425500

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gas Flow									
Batch	1675923								
QC1203815773	MB								
Strontium-90			U	-0.266	pCi/L			JXB7	07/01/1714:19
				Uncert: +/-0.572					
				TPU: +/-0.572					
**Strontium Carrier		7.75		5.80	mg	REC: 75	(40%-110%)		
QC1203815774	425103020	DUP							
Strontium-90			5.98	4.83	pCi/L				07/05/1708:00
				Uncert: +/-1.06		RPD: 21*	(0% - 20%)		
				TPU: +/-1.43		RER: 1.19	(0-2)		
**Strontium Carrier		7.75	5.50	7.20	mg	REC: 93	(40%-110%)		
QC1203815775	LCS								
Strontium-90			72.8	83.3	pCi/L	REC: 114	(80%-120%)		07/01/1714:20
				Uncert: +/-4.35					
				TPU: +/-14.1					
**Strontium Carrier		7.75		5.20	mg	REC: 67	(40%-110%)		
Batch	1680213								
QC1203825674	MB								
Alpha			U	0.592	pCi/L			LXB3	07/08/1711:09
				Uncert: +/-1.12					
				TPU: +/-1.13					
Beta			U	1.75	pCi/L				
				Uncert: +/-1.60					
				TPU: +/-1.62					
QC1203825675	426412007	DUP							
Alpha		U	-0.378	U	-1.19	pCi/L			07/10/1711:55
				Uncert: +/-1.14		RPD: 0	N/A		
				TPU: +/-1.15		RER: 0.986	(0-2)		
Beta			529	540	pCi/L				
				Uncert: +/-11.6		RPD: 2	(0% - 20%)		
				TPU: +/-87.0		RER: 0.185	(0-2)		
QC1203825676	426412007	MS							
Alpha		242	U	-0.378	209	pCi/L	REC: 87	(75%-125%)	07/10/1710:10
				Uncert: +/-1.14					
				TPU: +/-1.15					
Beta		874		529	1430	pCi/L	REC: 104	(75%-125%)	
				Uncert: +/-11.6					
				TPU: +/-87.0					
QC1203825677	426412007	MSD							
Alpha		242	U	-0.378	280	pCi/L	REC: 116	(75%-125%)	07/10/1710:10
				Uncert: +/-1.14		RPD: 29*	(0%-20%)		
				TPU: +/-1.15		RER: 1.99	(0-2)		
Beta		874		529	1590	pCi/L	REC: 122	(75%-125%)	
				Uncert: +/-11.6		RPD: 10	(0%-20%)		
				TPU: +/-87.0		RER: 0.863	(0-2)		
QC1203825678	LCS								

QC Summary

Workorder: 425500

Page 2 of 3

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date	Time
Rad Gas Flow										
Batch	1680213									
Alpha	80.6			81.6	pCi/L	REC: 101	(80%-120%)			
	Uncert:			+/-7.55						
	TPU:			+/-15.6						
Beta	291			323	pCi/L	REC: 111	(80%-120%)			
	Uncert:			+/-11.3						
	TPU:			+/-53.6						

Notes:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- * Duplicate analysis not within control limits
- + Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
- < Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide
- > Result greater than quantifiable range or greater than upper limit of the analysis range
- A The TIC is a suspected aldol-condensation product
- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- B The analyte was detected in both the associated QC blank and in the sample.
- B The associated QC sample blank has a result $\geq 2X$ the MDA and, after corrections, result is \geq MDA for this sample
- C Analyte has been confirmed by GC/MS analysis
- C Target analyte was detected in the sample and the associated blank. The associated blank concentration is \geq EQL or is > 5% of the measured concentration and/or decision level for associated samples.
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- E Reported value is estimated due to interferences. See comment in narrative.
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate). Value is estimated
- M Duplicate precision not met.
- N Spike Sample recovery is outside control limits.
- P Aroclor target analyte with greater than 25% difference between column analyses.
- S Reported value determined by the Method of Standard Additions (MSA)
- T Spike and/or spike duplicate sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- UX Gamma Spectroscopy--Uncertain identification
- W Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- o Analyte failed to recover within LCS limits (Organics only)

QC Summary

Workorder: 425500

Page 3 of 3

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date	Time
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N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

** Indicates analyte is a surrogate compound.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.