



July 07, 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: 426732
SDG: GEL426732

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 30, 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: I17-008-155, I17-008-157, I17-008-159, I17-008-161, I17-008-163, I17-008-186 and
I17-008-198
Enclosures



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Case Narrative

July 12, 2017

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF I17-008
SDG: GEL426732

July 07, 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 30, 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>
426732001	B39MB6
426732002	B39MC3
426732003	B39MC4
426732004	B39MD0
426732005	B39MD5
426732006	B39MN5
426732007	B39MV2

Case Narrative

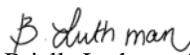
Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

July 12, 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: General Chemistry.

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 12, 2017

General Chemistry

Technical Case Narrative

CH2M Hill Plateau Remediation Company (CPRC)

SDG #: GEL426732

Work Order #: 426732

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.

Miscellaneous Information

Manual Integrations

Samples 1203822622 (B39MN5DUP), 426732001 (B39MB6), 426732002 (B39MC3), 426732003 (B39MC4), 426732004 (B39MD0), 426732005 (B39MD5) and 426732006 (B39MN5) were manually integrated to correctly position the baseline as set in the calibration standards.

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 samples 1203822626 (Non SDG 426733003DUP) and 1203822627 (Non SDG 426733003PS) were diluted because target analyte concentrations exceeded the calibration range.

Miscellaneous Information

Manual Integrations

Samples 1203822626 (Non SDG 426733003DUP), 1203822627 (Non SDG 426733003PS) and 426732007 (B39MV2) 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 requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Chain of Custody and Supporting Documentation

July 12, 2017

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. # I17-008-155
426732						Page 1 of 1
Collector	Frank Hill /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 23159		Ice Chest No.	6WS-298
Shipped To (Lab)	GEL Laboratories, LLC	Method of Shipment	Commercial Carrier		Bill of Lading/Air Bill No.	7795 23039133
Protocol	CERCLA	Priority:	30 Days		Offsite Property No.	8120
POSSIBLE SAMPLE HAZARDS/REMARKS		SPECIAL INSTRUCTIONS		Hold Time	Total Activity Exemption:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
** ** 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		N/A				
Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis	Holding Time
B39MB6	N	WJUN 28 2017	1220	1x125-mL G/P	9056_ANIONS_IC: COMMON	48 Hours
				Preservative	Cool <=6C	

Relinquished By	Frank Hill /CHPRC	Print	Sign	Received By	SSU-1	Print	Sign	Date/Time	JUN 28 2017 1500	Matrix *
Relinquished By	SSU-1			Received By	Janelle Zunker /CHPRC			Date/Time	JUN 29 2017 0700	S = Soil
Relinquished By	Janelle Zunker /CHPRC			Received By	FEDEX			Date/Time	JUN 29 2017 1400	SE = Sediment
Relinquished By	FEDEX			Received By	STACY BOONE			Date/Time	6/30/17 9:05	SO = Solid
Disposal Method (e.g., Return to customer, per lab procedure, used in process)										DS = Drum Solids
Disposed By										DL = Drum Liquids
Date/Time										T = Tissue
Date/Time										WI = Wipe
Date/Time										L = Liquid
Date/Time										V = Vegetation
Date/Time										A = Air
Date/Time										X = Other

July 12, 2017

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C.# I17-008-157
		426732				Page 1 of 1
Collector	Frank Hall /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 3/5-9		Ice Chest No.	6WS-298
Shipped To (Lab)	GEL Laboratories, LLC	Method of Shipment	Commercial Carrier		Bill of Lading/Air Bill No.	7795 2303 9133
Protocol	CERCLA	Priority:	30 Days		Offsite Property No.	8120
POSSIBLE SAMPLE HAZARDS/REMARKS		SPECIAL INSTRUCTIONS		Hold Time	Total Activity Exemption: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
** ** 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		N/A				
Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis	Holding Time
B39MC3	N	W JUN 28 2017	12:49	1x125-mL G/P	9056_ANIONS_IC: COMMON	48 Hours
						Preservative
						Cool <=6C

Relinquished By	Frank Hall /CHPRC	Print	Sign	Received By	SSU-1	Print	Sign	Date/Time	JUN 28 2017 1500	Matrix *	DS = Drum Solids
Relinquished By	SSU-1			Received By	Janelle Zunker /CHPRC			Date/Time	JUN 29 2017 0700	DL = Drum Liquids	
Relinquished By	Janelle Zunker /CHPRC			Received By	FEDEX			Date/Time		T = Tissue	
Relinquished By	STPELEX			Received By	STACY BOONE			Date/Time	6/30/17 9:05	WI = Wipe	
				Received By				Date/Time		L = Liquid	
				Received By				Date/Time		V = Vegetation	
				Received By				Date/Time		A = Air	
FINAL SAMPLE DISPOSITION		Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By		Date/Time					

July 12, 2017

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. # I17-008-159
Collector Frank Hill /CHPRC	Contact/Requester Karen Waters-Husted	Telephone No. 509-376-4650	Page 1 of 1			
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 43159	Ice Chest No. 6WS 298				
Shipped To (Lab) GEL Laboratories, LLC	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No. 779523039133				
Protocol CERCLA	Priority: 30 Days	Offsite Property No. 8120				
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		SPECIAL INSTRUCTIONS N/A		Hold Time		Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample No. B39MC4	Filter N	Date JUN 28 2017	Time 1349	No/Type Container 1x125-mL G/P	9056_ANIONS_IC: COMMON	Sample Analysis Preservative Cool <=6C

Relinquished By Frank Hill /CHPRC	Print 	Sign	Received By SSU-1	Print SSU-1	Sign	Date/Time JUN 28 2017 1500	Matrix * S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By SSU-1	Print 	Sign	Received By Janelia Zunker /CHPRC	Print J. Zunker	Sign	Date/Time JUN 29 2017 0700	DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
Relinquished By Janelia Zunker /CHPRC	Print 	Sign	Received By FEDEX	Print FEDEX	Sign	Date/Time JUN 29 2017 1400	
Relinquished By SSU-1	Print 	Sign	Received By M/R STACY BOONE	Print M/R STACY BOONE	Sign	Date/Time 6/30/17 9:05	
FINAL SAMPLE DISPOSITION		Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By		Date/Time	

July 12, 2017

35105
416732

CH2M Hill Plateau Remediation Company		C.O.C. # I17-008-186	
Custodian CHPRC		Page 1 of 1	
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			
Collector	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	I17-008	Purchase Order/Charge Code	300071
Project Title	100-NR-2 GW-OU Monitoring Apatite B	Ice Chest No.	6WS-609
Shipped To (Lab)	GEL Laboratories, LLC	Bill of Lading/Air Bill No.	7795 2800 040
Protocol	CERCLA	Offsite Property No.	8123
POSSIBLE SAMPLE HAZARDS/REMARKS		Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
** ** 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			
Special Instructions	N/A	Hold Time	
Sample No.	B39MN5	Sample Analysis	9056_ANIONS_IC: COMMON
Filter	N	Holding Time	48 Hours
Date	WJUN 29 2017 1107	Preservative	Cool <=6C
No/Type Container	1x125-mL G/P		

Relinquished By Jeff Tucker CHPRC	Print 	Sign	Date/Time JUN 29 2017 1200	Received By Janelle Zunker CHPRC	Print 	Sign	Date/Time JUN 29 2017 1200	Matrix *
Relinquished By Janelle Zunker CHPRC	Print 	Sign	Date/Time JUN 29 2017 1400	Received By Stacy Boone	Print FEDEX	Sign	Date/Time 6/30/17 9:05	S = Soil
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	DS = Drum Solids
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	DL = Drum Liquids
								T = Tissue
								WI = Wipe
								L = Liquid
								V = Vegetation
								X = Other
FINAL SAMPLE DISPOSITION		Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By		Date/Time		
PRINTED ON 5/4/2017		FSR ID = FSR45007		A-6004-842 (REV 2)				

July 12, 2017

CH2M Hill Plateau Remediation Company		C.O.C. # I17-008-198	
Jeff Tuckson CHPRC		Page 1 of 1	
Collector	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	I17-008	Purchase Order/Charge Code	300071
Project Title	100-NR-2 GW-OU Monitoring Apatite B	Ice Chest No.	6WS-6009
Shipped To (Lab)	GEL Laboratories, LLC	Bill of Lading/Air Bill No.	795 2800 040
Protocol	CERCLA	Offsite Property No.	7123
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		Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample No.	B39MV2	Filter	N
Date	W JUN 29 7117 0906	No/Type Container	1x125-mL G/P
Time		Sample Analysis	9056_ANIONS_IC: COMMON
		Holding Time	48 Hours
		Preservative	Cool <=6C

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

416732

PRIORITY

SPECIAL INSTRUCTIONS
N/A

Relinquished By Jeff Tuckson CHPRC	Print 	Sign 	Date/Time JUN 29 2017 1055	Received By Janelle Zunker CHPRC	Print 	Sign 	Date/Time JUN 29 2017 1025	Matrix *
Relinquished By Janelle Zunker CHPRC	Print 	Sign 	Date/Time JUN 29 2017 1400	Received By	Print FEDEX	Sign	Date/Time	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By	Print	Sign	Date/Time FED EX	Received By STACY BOONE	Print	Sign	Date/Time 6/30/17 9:05	DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	
FINAL SAMPLE DISPOSITION				Disposal Method (e.g., Return to customer, per lab procedure, used in process)				Date/Time

July 12, 2017



SAMPLE RECEIPT & REVIEW FORM

Client: <u>CPRC</u>		SDG/AR/COC/Work Order: <u>U216732</u>		
Received By: <u>Hay Bonn</u>		Date Received: <u>30-JUN-17</u>		
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 <u>7795 2302 9133 -1c</u> <u>7795 2800 0400 -1c</u>		
Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.	
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____	
COC/Samples marked or classified as radioactive?		<input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u> CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3	
Is package, COC, and/or Samples marked HAZ?		<input checked="" type="checkbox"/>	If yes, select Hazards below, and contact the GEL Safety Group. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium 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"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
3 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>			Preservation Method: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None Other: _____ *all temperatures are recorded in Celsius TEMP: _____
4 Daily check performed and passed on IR temperature gun?	<input checked="" 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"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	Sample ID's and Containers Affected: <u>B39J13 C2 1 LITERS</u> If Preservation added, Lot#: <u>1705308D</u>
7 Do any samples require Volatile Analysis?				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) <input checked="" type="checkbox"/> 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"/>			ID's and tests affected: _____
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected: _____
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected: _____
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected: _____
12 Are sample containers identifiable as GEL provided?			<input checked="" type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			
Comments (Use Continuation Form if needed):				

PM (or PMA) review: Initials NS Date 6/30/17 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 07 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

General Chem Analysis

Case Narrative

July 12, 2017

General Chemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL426732
Work Order #: 426732

Product: Ion Chromatography

Analytical Method: 9056_ANIONS_IC

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

Analytical Batches: 1678767 and 1678768

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
426732001	B39MB6
426732002	B39MC3
426732003	B39MC4
426732004	B39MD0
426732005	B39MD5
426732006	B39MN5
426732007	B39MV2
1203822620	Method Blank (MB)
1203822621	Laboratory Control Sample (LCS)
1203822622	426732006(B39MN5) Sample Duplicate (DUP)
1203822623	426732006(B39MN5) Post Spike (PS)
1203822624	Method Blank (MB)
1203822625	Laboratory Control Sample (LCS)
1203822626	426733003(NonSDG) Sample Duplicate (DUP)
1203822627	426733003(NonSDG) 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 samples 1203822626 (Non SDG 426733003DUP) and 1203822627 (Non SDG 426733003PS) were 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.

Miscellaneous Information

Manual Integrations

Samples 1203822622 (B39MN5DUP), 426732001 (B39MB6), 426732002 (B39MC3), 426732003 (B39MC4), 426732004 (B39MD0), 426732005 (B39MD5), 426732006 (B39MN5), 1203822626 (Non SDG 426733003DUP),

July 12, 2017

1203822627 (Non SDG 426733003PS) and 426732007 (B39MV2) 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 requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

July 12, 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: GEL426732 GEL Work Order: 426732

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).

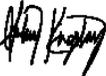
D Results are reported from a diluted aliquot of sample.

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: **Aubrey Kingsbury**

Date: **07 JUL 2017**

Title: **Analyst I**

Sample Data Summary

Certificate of Analysis

Report Date: July 7, 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: B39MB6	Project: CPRC017008
Sample ID: 426732001	Client ID: CPRC001
Matrix: WATER	
Collect Date: 28-JUN-17 12:20	
Receive Date: 30-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		1780	67.0	200	ug/L		1	MXL2	06/30/17	1050	1678767	1
Fluoride	B	77.5	33.0	500	ug/L		1					
Nitrate-N		256	33.0	250	ug/L		1					
Nitrite-N	B	45.4	33.0	250	ug/L		1					
Sulfate		9580	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 |

Certificate of Analysis

Report Date: July 7, 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: B39MC3	Project: CPRC017008
Sample ID: 426732002	Client ID: CPRC001
Matrix: WATER	
Collect Date: 28-JUN-17 12:49	
Receive Date: 30-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		1870	67.0	200	ug/L		1	MXL2	06/30/17	1119	1678767	1
Fluoride	B	70.0	33.0	500	ug/L		1					
Nitrate-N		515	33.0	250	ug/L		1					
Nitrite-N	B	46.1	33.0	250	ug/L		1					
Sulfate		9720	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 |

Certificate of Analysis

Report Date: July 7, 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: B39MC4	Project: CPRC0I17008
Sample ID: 426732003	Client ID: CPRC001
Matrix: WATER	
Collect Date: 28-JUN-17 12:49	
Receive Date: 30-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		1870	67.0	200	ug/L		1	MXL2	06/30/17	1147	1678767	1
Fluoride	B	69.2	33.0	500	ug/L		1					
Nitrate-N		519	33.0	250	ug/L		1					
Nitrite-N	B	45.6	33.0	250	ug/L		1					
Sulfate		9740	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

Certificate of Analysis

Report Date: July 7, 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: B39MD0	Project: CPRC017008
Sample ID: 426732004	Client ID: CPRC001
Matrix: WATER	
Collect Date: 29-JUN-17 10:28	
Receive Date: 30-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		4220	67.0	200	ug/L		1	MXL2	06/30/17	1021	1678767	1
Fluoride	B	119	33.0	500	ug/L		1					
Nitrate-N		426	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Sulfate		9020	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

Certificate of Analysis

Report Date: July 7, 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: B39MD5	Project: CPRC017008
Sample ID: 426732005	Client ID: CPRC001
Matrix: WATER	
Collect Date: 29-JUN-17 09:46	
Receive Date: 30-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		1770	67.0	200	ug/L		1	MXL2	06/30/17	1216	1678767	1
Fluoride	B	82.5	33.0	500	ug/L		1					
Nitrate-N		2580	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Sulfate		12600	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

Certificate of Analysis

Report Date: July 7, 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: B39MN5	Project: CPRC017008
Sample ID: 426732006	Client ID: CPRC001
Matrix: WATER	
Collect Date: 29-JUN-17 11:07	
Receive Date: 30-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		1640	67.0	200	ug/L		1	MXL2	06/30/17	1245	1678767	1
Fluoride	B	69.7	33.0	500	ug/L		1					
Nitrate-N		440	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Sulfate		9390	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 |

Certificate of Analysis

Report Date: July 7, 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: B39MV2	Project: CPRC017008
Sample ID: 426732007	Client ID: CPRC001
Matrix: WATER	
Collect Date: 29-JUN-17 09:06	
Receive Date: 30-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		1470	67.0	200	ug/L		1	MXL2	06/30/17	1152	1678768	1
Fluoride	B	84.0	33.0	500	ug/L		1					
Nitrate-N		536	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Sulfate		9600	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 12, 2017

GEL LABORATORIES LLC

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

QC Summary

Report Date: July 7, 2017

CH2MHill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 426732

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography											
Batch	1678767										
QC1203822622	426732006	DUP									
Chloride		1640		1620	ug/L	1.08		(0%-20%)	MXL2	06/30/17	13:14
Fluoride	B	69.7	B	73.0	ug/L	4.63	^	(+/-500)			
Nitrate-N		440		426	ug/L	3.24	^	(+/-250)			
Nitrite-N	U	33.0	U	33.0	ug/L	N/A					
Sulfate		9390		9370	ug/L	0.123		(0%-20%)			
QC1203822621	LCS										
Chloride	5000			4630	ug/L			92.5	(80%-120%)	06/30/17	14:41
Fluoride	2500			2370	ug/L			94.6	(80%-120%)		
Nitrate-N	2500			2340	ug/L			93.5	(80%-120%)		
Nitrite-N	2500			2380	ug/L			95.1	(80%-120%)		
Sulfate	10000			9550	ug/L			95.5	(80%-120%)		
QC1203822620	MB										
Chloride			U	67.0	ug/L					06/30/17	14:12
Fluoride			U	33.0	ug/L						
Nitrate-N			U	33.0	ug/L						

July 12, 2017

GEL LABORATORIES LLC

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

QC Summary

Workorder: 426732

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography											
Batch	1678767										
Nitrite-N			U	33.0	ug/L				MXL2	06/30/17	14:12
Sulfate			U	133	ug/L						
QC1203822623 426732006 PS											
Chloride	5.00	1.64		6.32	mg/L		93.5	(75%-125%)		06/30/17	13:43
Fluoride	2.50	B 0.0697		2.38	mg/L		92.3	(75%-125%)			
Nitrate-N	2.50	0.440		2.71	mg/L		91	(75%-125%)			
Nitrite-N	2.50	U 0.00		2.35	mg/L		94	(75%-125%)			
Sulfate	10.0	9.39		19.7	mg/L		103	(75%-125%)			
Batch 1678768											
QC1203822626 426733003 DUP											
Chloride		D 14100	D	14100	ug/L	0.0922		(0%-20%)	MXL2	06/30/17	19:05
Fluoride		B 116	B	115	ug/L	0.954 ^		(+/-500)		06/30/17	13:47
Nitrate-N		D 5310	D	5300	ug/L	0.226		(0%-20%)		06/30/17	19:05
Nitrite-N		U 33.0	U	33.0	ug/L	N/A				06/30/17	13:47
Sulfate		D 185000	D	184000	ug/L	0.375		(0%-20%)		06/30/17	21:59
QC1203822625 LCS											
Chloride	5000			4660	ug/L		93.3	(80%-120%)		06/30/17	15:14
Fluoride	2500			2400	ug/L		96	(80%-120%)			

July 12, 2017

GEL LABORATORIES LLC

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QC Summary

Workorder: 426732

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography											
Batch	1678768										
Nitrate-N	2500			2350	ug/L		94.2	(80%-120%)	MXL2	06/30/17	15:14
Nitrite-N	2500			2390	ug/L		95.6	(80%-120%)			
Sulfate	10000			9760	ug/L		97.6	(80%-120%)			
QC1203822624 MB											
Chloride			U	67.0	ug/L					06/30/17	14:45
Fluoride			U	33.0	ug/L						
Nitrate-N			U	33.0	ug/L						
Nitrite-N			U	33.0	ug/L						
Sulfate			U	133	ug/L						
QC1203822627 426733003 PS											
Chloride	5.00	D	2.82	D	7.83	mg/L	100	(75%-125%)		06/30/17	19:34
Fluoride	2.50	B	0.116		2.47	mg/L	94.1	(75%-125%)		06/30/17	14:16
Nitrate-N	2.50	D	1.06	D	3.51	mg/L	97.8	(75%-125%)		06/30/17	19:34
Nitrite-N	2.50	U	0.00		2.37	mg/L	95	(75%-125%)		06/30/17	14:16
Sulfate	10.0	D	9.24	D	19.7	mg/L	105	(75%-125%)		06/30/17	22:28

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

July 12, 2017

GEL LABORATORIES LLC

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

QC Summary

Workorder: 426732

Page 4 of 4

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
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										

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.