GEL Laboratories LLC
a member of The GEL Group INC

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July 19, 2017

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

Re: CHPRC SAF F17-003
Work Order: 426169
SDG: GEL426169

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 23, 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: 301754 - 7H
Chain of Custody: F17-003-008
Enclosures

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Sample Issue Resolution

SAMPLE ISSUE RESOLUTION

SIR NUM	SIR17-773
REV NUM	0
DATE INITIATED	6/26/2017

SAMPLE EVENT INFORMATION

SAF NUM(S)	F17-003
OPERABLE UNIT(S)	
PROJECT(S)	CPP 200 Area
SAMPLE EVENT TITLE(S)	SWL Monitoring
LABORATORY	GEL Laboratories, LLC

SAMPLING INFORMATION

NUMBER OF SAMPLES	1
SAMPLE NUMBERS	B3BBC0
SAMPLE MATRIX	
COLLECTION DATE	-
SDG NUM	GEL426169

ISSUE BACKGROUND

CLASS	Field Sampling Issue
TYPE	Incorrect Sample Preservation
DESCRIPTION	All preserved containers for B3BBC0 came in at a pH greater than 2.

DISPOSITION

DESCRIPTION	GEL will preserve to the correct pH and proceed.
JUSTIFICATION	Final Disposition: Accept proposed resolution.

SUBMITTED BY: Heather Shaffer DATE: 06/23/2017
ACCEPTED BY: Sarah Nagel DATE: 06/26/2017

Case Narrative

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF F17-003
SDG: GEL426169

July 19, 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 23, 2017, for analysis. The sample was delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. Please see the enclosed SIR for further details on receipt issues.

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 sample:

Laboratory Identification	Sample Description
426169001	B3BBC0

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.

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 and Metals.

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.

B Luthman

Brielle Luthman for
Heather Shaffer
Project Manager

Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL426169
Work Order #: 426169

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

CRDL/PQL Requirements
The PQL standard recoveries for SW846 6010C or 6010D met the control limits with the exception of potassium. Client sample concentrations were less than the MDL or greater than two times the PQL; therefore the data were not adversely affected. 426169001 (B3BBC0).

Determination of Metals by ICP-MS

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
Sample 426169001 (B3BBC0) was diluted to ensure that the analyte concentration was within the linear calibration range of the instrument.

Analyte	426169
	001
Manganese	10X
Strontium	10X

Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer

There are no exceptions, anomalies or deviations from the specified methods. 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.

General Chemistry

Carbon, Total Organic

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 1203820920 (B3BBC0DUP), 1203820922 (B3BBC0PS) and 426169001 (B3BBC0) were diluted because target analyte concentrations exceeded the calibration range.

Analyte	426169 001
Total Organic Carbon #1	10X
Total Organic Carbon #2	10X
Total Organic Carbon #3	10X
Total Organic Carbon #4	10X
Total Organic Carbon Average	10X

Total Organic Halogens (TOX)

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

Breakthrough effect
The breakthrough effect was observed and confirmed for the following samples: 1203828912 (B3BBC0DUP), 1203828913 (B3BBC0PS) and 426169001 (B3BBC0).

Ammonia Nitrogen

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

Method Blank (MB) Statement
The MBs 1203816312 (MB) and 426169001 (B3BBC0) analyzed with this SDG met the acceptance criteria. In

instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data.

Technical Information

Sample Re-analysis
Samples1203816312 (MB) and 1203816313 (LCS) were re-analyzed due to CCV failure. The reanalysis data with passing instrument QC was reported.

Solids, Total Dissolved

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

Method Blank (MB) Statement
The MBs 1203817580 (MB) and 426169001 (B3BBC0) analyzed with this SDG met the acceptance criteria. In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data.

COD

There are no exceptions, anomalies or deviations from the specified methods. 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.

pH

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

Holding Times
Samples (See Below) were received by the laboratory outside of the method specified holding time. The data is qualified.

Sample	Analyte	Value
1203821878 (B3BBC0DUP)	pH	Received 23-JUN-17, out of holding 21-JUN-17
426169001 (B3BBC0)	pH	Received 23-JUN-17, out of holding 21-JUN-17

Alkalinity

There are no exceptions, anomalies or deviations from the specified methods. 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.

Specific Conductivity

There are no exceptions, anomalies or deviations from the specified methods. 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.

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

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 426169	F17-003-008	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 7H	DATA TURNAROUND
Kevin Patterson CHPRC	MEDLEY, HA	373-6909	MEDLEY, HA	AIR QUALITY ☐	30 Days / 30 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
SWL LEACHATE	Solid Waste Landfill - Leachate		F17-003		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
GWS-458	~~HNF-N~~ 50738 / 15	N/A	301754	FEDERAL EXPRESS	ORIGINAL
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
GEL Laboratories, LLC	8077		7794 6794 7636		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

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

SPECIAL HANDLING AND/OR STORAGE
NA
* due to air generated pumping unable to obtain zero headspace

PRESERVATION	H2SO4 to pH <2/Cool <=6C	HCl or H2SO4 to pH <2/Cool	HNO3 to pH <2	H2SO4 to pH <2/Cool <=6C	Cool <=6C	H2SO4 to pH <2/Cool <=6C	Cool <=6C	Cool <=6C
HOLDING TIME	28 Days	28 Days	28 Days	28 Days	ASAP	28 Days	7 Days	14 Days
TYPE OF CONTAINER	aGs*	aG	G/P	G/P	P	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1	1	1	1	1
VOLUME	1L	250mL	500mL	250mL	125mL	250mL	250mL	250mL
SAMPLE ANALYSIS	9020_TOX: COMMON;	9060_TOC: COMMON;	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	350.1_AMMONIA: COMMON;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	410.4_COD: COMMON;	2540C_TDS: COMMON;	SEE ITEM (3) IN SPECIAL INSTRUCTIONS
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME							
B3BBC0	WATER	JUN 2 1 2017	1102	✓	✓	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	JUN 2 1 2017 1145	SSU-1	JUN 2 1 2017 1145
SSU-1	JUN 2 2 2017 0730	Janelle Zunker CHPRC	JUN 2 2 2017 0730
Janelle Zunker CHPRC	JUN 2 2 2017 1400	FEDEX	
FX		M. Gordon	6-23-17 - 0920

SPECIAL INSTRUCTIONS
TRVL-17-158
(1) 7470_MERCURY_CV: COMMON (AQUEOUS); 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium, Vanadium}; 6020_METALS_ICPMS: COMMON {Aluminum, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Arsenic, Manganese, Nickel, Strontium, Thallium, Thorium, Uranium, Zinc}; (2) 9040_pH (AQUEOUS): COMMON; 9050_CONDUCTIVITY: COMMON; (3) 2320_ALKALINITY: COMMON {Alkalinity}; 2320_ALKALINITY: COMMON (Add-on) {Bicarbonate, Carbonate alkalinity, Hydroxylion};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 6/8/2017 | FSR ID = FSR46058 | TRVL NUM = TRVL-17-158 | A-6003-618 (REV 2)

07/20/2017

REV.0

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: CRC	**SDG/AR/COC/Work Order:** 426164
Received By: MF	**Date Received:** 6-23-17
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 7794 7326 7450 1C 6794 7636 1C 6794 7500 1C 7326 7488 1C

Suspected Hazard Information	Yes	No	
Shipped as a DOT Hazardous?		✓	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. Hazard Class Shipped: UN#:
COC/Samples marked or classified as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
Is package, COC, and/or Samples marked HAZ?		✓	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?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: 1C
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR2-16 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe) HS 6/27/17
6	Samples requiring chemical preservation at proper pH?	✓		✓	Sample ID's and Containers Affected: If Preservation added, Lot#: *See Below
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) VOA vials free of headspace? Yes No___ N/A Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			

Comments (Use Continuation Form if needed):

* ~~ALL PRESERVED CONTAINER HAVE PH > 2 HS~~ 6/27/17
Analyst checked + confirmed pH ok

PM (or PMA) review: Initials CS Date 6/23/17 Page 1 of 1

GL-CHL-SR-001 Rev 5

Data Review Qualifier Definitions

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 (843) 556−8171

Report Date: 19−JUL−17

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 (0rganics 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 >= 2X the MDA and, after corrections, result is >= 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 >= 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 >= 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 19 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

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL426169
Work Order #: 426169

Product: **Determination of Metals by ICP**
Analytical Method: SW846 3005A/6010D
Analytical Procedure: GL-MA-E-013 REV# 28
Analytical Batch: 1676948

Product: **Determination of Metals by ICP-MS**
Analytical Method: SW846 3005A/6020B
Analytical Procedure: GL-MA-E-014 REV# 30
Analytical Batch: 1676975

Product: **Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer**
Analytical Method: 7470_HG_CVAA
Analytical Procedure: GL-MA-E-010 REV# 34
Analytical Batch: 1677991

Preparation Method: SW846 3005A
Preparation Procedure: GL-MA-E-006 REV# 13
Preparation Batches: 1676947 and 1676974

Preparation Method: SW846 7470A Prep
Preparation Procedure: GL-MA-E-010 REV# 34
Preparation Batch: 1677989

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

GEL Sample ID#	Client Sample Identification
426169001	B3BBC0
1203818262	Method Blank (MB)**ICP**
1203818263	Laboratory Control Sample (LCS)
1203818266	426165013(NonSDGL) Serial Dilution (SD)
1203818264	426165013(NonSDGS) Matrix Spike (MS)
1203818265	426165013(NonSDGSD) Matrix Spike Duplicate (MSD)
1203818330	Method Blank (MB)**ICP-MS**
1203818331	Laboratory Control Sample (LCS)
1203818334	426169001(B3BBC0L) Serial Dilution (SD)
1203818332	426169001(B3BBC0S) Matrix Spike (MS)
1203818333	426169001(B3BBC0SD) Matrix Spike Duplicate (MSD)
1203820740	Method Blank (MB)**CVAA**
1203820741	Laboratory Control Sample (LCS)
1203820747	425780001(NonSDGL) Serial Dilution (SD)
1203820745	425780001(NonSDGD) Sample Duplicate (DUP)
1203820746	425780001(NonSDGS) Matrix Spike (MS)

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

CRDL/PQL Requirements
The PQL standard recoveries for SW846 6010C or 6010D met the control limits with the exception of potassium. Client sample concentrations were less than the MDL or greater than two times the PQL; therefore the data were not adversely affected. 426169001 (B3BBC0)-ICP.

ICSA/ICSAB Statement
For the ICP-MS analysis, the ICSA solution contains analyte concentrations which are verified trace impurities indigenous to the purchased standard.

Technical Information

Sample Dilutions
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. Sample 426169001 (B3BBC0)-ICP-MS was diluted to ensure that the analyte concentration was within the linear calibration range of the instrument.

Analyte	**426169001**
Manganese	10X
Strontium	10X

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.

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: GEL426169 GEL Work Order: 426169

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).

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: 14 JUL 2017 **Title: Data Validator**

Sample Data Summary

GEL Laboratories LLC

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL426169 **CONTRACT:** CPRC0F17003 **METHOD TYPE:** SW846

SAMPLE ID: 426169001 **BASIS:** As Received **DATE COLLECTED** 21−JUN−17

CLIENT ID: B3BBC0 **LEVEL:** Low **DATE RECEIVED** 23−JUN−17

MATRIX: WATER **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	24.9	ug/L	B	19.3	50	50	1	MS	BAJ	07/07/17 22:05	170707−2	1676975
7440−38−2	Arsenic	28.3	ug/L		2	5	5	1	MS	BAJ	07/07/17 22:05	170707−2	1676975
7440−39−3	Barium	447	ug/L		0.67	2	2	1	MS	BAJ	07/07/17 22:05	170707−2	1676975
7440−41−7	Beryllium	0.20	ug/L	U	0.2	0.5	0.5	1	MS	BAJ	07/08/17 03:46	170707−3	1676975
7440−43−9	Cadmium	0.375	ug/L	B	0.3	1	1	1	MS	BAJ	07/07/17 22:05	170707−2	1676975
7440−70−2	Calcium	178000	ug/L		50	200	200	1	P	HSC	06/30/17 15:06	063017−1	1676948
7440−47−3	Chromium	3	ug/L	U	3	10	10	1	MS	BAJ	07/07/17 22:05	170707−2	1676975
7440−48−4	Cobalt	2.2	ug/L		0.3	1	1	1	MS	BAJ	07/07/17 22:05	170707−2	1676975
7440−50−8	Copper	7.84	ug/L		0.3	1	1	1	MS	BAJ	07/07/17 22:05	170707−2	1676975
7439−89−6	Iron	8900	ug/L		30	100	100	1	P	HSC	06/30/17 15:06	063017−1	1676948
7439−92−1	Lead	1.65	ug/L	B	0.5	2	2	1	MS	BAJ	07/07/17 22:05	170707−2	1676975
7439−95−4	Magnesium	92600	ug/L		110	300	300	1	P	HSC	06/30/17 15:06	063017−1	1676948
7439−96−5	Manganese	2240	ug/L	D	10	50	50	10	MS	SKJ	07/11/17 14:37	170711−5	1676975
7439−97−6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	06/29/17 11:47	062917W1−6	1677991
7439−98−7	Molybdenum	4.99	ug/L		0.2	0.5	0.5	1	MS	BAJ	07/07/17 22:05	170707−2	1676975
7440−02−0	Nickel	46.1	ug/L		0.6	2	2	1	MS	BAJ	07/07/17 22:05	170707−2	1676975
7440−09−7	Potassium	13100	ug/L		50	150	150	1	P	HSC	06/30/17 15:06	063017−1	1676948
7782−49−2	Selenium	2	ug/L	U	2	5	5	1	MS	BAJ	07/07/17 22:05	170707−2	1676975
7440−23−5	Sodium	111000	ug/L		100	300	300	1	P	HSC	06/30/17 15:06	063017−1	1676948
7440−24−6	Strontium	1550	ug/L	D	20	100	100	10	MS	BAJ	07/10/17 15:38	170710−4	1676975
7440−28−0	Thallium	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	07/07/17 22:05	170707−2	1676975
7440−29−1	Thorium	0.70	ug/L	U	0.7	2	2	1	MS	BAJ	07/07/17 22:05	170707−2	1676975
7440−61−1	Uranium	0.838	ug/L		0.067	0.2	0.2	1	MS	BAJ	07/07/17 22:05	170707−2	1676975
7440−62−2	Vanadium	2.7	ug/L	B	1	5	5	1	P	HSC	06/30/17 15:06	063017−1	1676948
7440−66−6	Zinc	1630	ug/L		3.3	10	10	1	MS	BAJ	07/07/17 22:05	170707−2	1676975

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1676948	1676947	SW846 3005A	50	mL	50	mL	06/23/17	CXW4
1676975	1676974	SW846 3005A	50	mL	50	mL	06/23/17	CXW4
1677991	1677989	SW846 7470A Prep	20	mL	20	mL	06/28/17	AXS5

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

AV **SW846 7470A**

Quality Control Summary

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

QC Summary

Report Date: July 14, 2017

CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington

Contact: **Mr. Scot Fitzgerald**

Workorder: **426169**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS										
Batch 1676975										
QC1203818331 LCS										
Aluminum	2000			2230	ug/L		111	(80%-120%)	BAJ	07/07/17 22:01
Arsenic	50.0			55.2	ug/L		110	(80%-120%)		
Barium	50.0			52.0	ug/L		104	(80%-120%)		
Beryllium	50.0			57.6	ug/L		115	(80%-120%)		07/08/17 03:42
Cadmium	50.0			53.0	ug/L		106	(80%-120%)		07/07/17 22:01
Chromium	50.0			51.7	ug/L		103	(80%-120%)		
Cobalt	50.0			52.3	ug/L		105	(80%-120%)		
Copper	50.0			53.2	ug/L		106	(80%-120%)		
Lead	50.0			51.4	ug/L		103	(80%-120%)		
Manganese	50.0			56.8	ug/L		114	(80%-120%)	SKJ	07/11/17 14:36
Molybdenum	50.0			51.3	ug/L		103	(80%-120%)	BAJ	07/07/17 22:01
Nickel	50.0			51.8	ug/L		104	(80%-120%)		
Selenium	50.0			55.9	ug/L		112	(80%-120%)		

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QC Summary

Workorder: **426169**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS										
Batch 1676975										
Strontium	50.0			58.0	ug/L		116	(80%-120%)	BAJ	07/10/17 15:36
Thallium	50.0			49.1	ug/L		98.3	(80%-120%)		07/07/17 22:01
Thorium	50.0			50.1	ug/L		100	(80%-120%)		
Uranium	50.0			50.3	ug/L		101	(80%-120%)		
Zinc	50.0			54.0	ug/L		108	(80%-120%)		
QC1203818330 MB										
Aluminum			U	19.3	ug/L					07/07/17 21:58
Arsenic			U	2.00	ug/L					
Barium			U	0.670	ug/L					
Beryllium			U	0.200	ug/L					07/08/17 03:39
Cadmium			U	0.300	ug/L					07/07/17 21:58
Chromium			U	3.00	ug/L					
Cobalt			U	0.300	ug/L					
Copper			U	0.300	ug/L					
Lead			U	0.500	ug/L					
Manganese			U	1.00	ug/L				SKJ	07/11/17 14:34

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QC Summary

Workorder: **426169**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS											
Batch 1676975											
Molybdenum				U	0.200	ug/L				BAJ	07/07/17 21:58
Nickel				U	0.600	ug/L					
Selenium				U	2.00	ug/L					
Strontium				U	2.00	ug/L					07/10/17 15:35
Thallium				U	0.600	ug/L					07/07/17 21:58
Thorium				U	0.700	ug/L					
Uranium				U	0.067	ug/L					
Zinc				U	3.30	ug/L					
QC1203818332 426169001 MS											
Aluminum	2000	B	24.9		2160	ug/L		107	(75%-125%)		07/07/17 22:08
Arsenic	50.0		28.3		80.8	ug/L		105	(75%-125%)		
Barium	50.0		447		487	ug/L		N/A	(75%-125%)		
Beryllium	50.0	U	0.200		51.2	ug/L		102	(75%-125%)		07/08/17 03:49
Cadmium	50.0	B	0.375		49.5	ug/L		98.2	(75%-125%)		07/07/17 22:08
Chromium	50.0	U	3.00		53.2	ug/L		103	(75%-125%)		
Cobalt	50.0		2.20		51.1	ug/L		97.8	(75%-125%)		

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QC Summary

Workorder: **426169**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS											
Batch 1676975											
Copper	50.0		7.84		51.6	ug/L		87.5	(75%-125%)	BAJ	07/07/17 22:08
Lead	50.0	B	1.65		47.7	ug/L		92.1	(75%-125%)		
Manganese	50.0	D	2240	D	2280	ug/L		N/A	(75%-125%)	SKJ	07/11/17 14:39
Molybdenum	50.0		4.99		58.5	ug/L		107	(75%-125%)	BAJ	07/07/17 22:08
Nickel	50.0		46.1		90.9	ug/L		89.6	(75%-125%)		
Selenium	50.0	U	2.00		49.9	ug/L		98.6	(75%-125%)		
Strontium	50.0	D	1550	D	1570	ug/L		N/A	(75%-125%)		07/10/17 15:39
Thallium	50.0	U	0.600		45.3	ug/L		90.4	(75%-125%)		07/07/17 22:08
Thorium	50.0	U	0.700		50.1	ug/L		99.3	(75%-125%)		
Uranium	50.0		0.838		51.4	ug/L		101	(75%-125%)		
Zinc	50.0		1630		1480	ug/L		N/A	(75%-125%)		
QC1203818333 426169001 MSD											
Aluminum	2000	B	24.9		2110	ug/L	2.43	104	(0%-20%)		07/07/17 22:11
Arsenic	50.0		28.3		80.2	ug/L	0.799	104	(0%-20%)		
Barium	50.0		447		494	ug/L	1.52	N/A	(0%-20%)		
Beryllium	50.0	U	0.200		52.4	ug/L	2.25	105	(0%-20%)		07/08/17 03:52

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QC Summary

Workorder: **426169**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS											
Batch 1676975											
Cadmium	50.0	B	0.375		48.4	ug/L	2.12	96.1	(0%-20%)	BAJ	07/07/17 22:11
Chromium	50.0	U	3.00		50.6	ug/L	5.03	98	(0%-20%)		
Cobalt	50.0		2.20		49.9	ug/L	2.34	95.4	(0%-20%)		
Copper	50.0		7.84		51.1	ug/L	0.982	86.5	(0%-20%)		
Lead	50.0	B	1.65		46.8	ug/L	1.97	90.2	(0%-20%)		
Manganese	50.0	D	2240	D	2260	ug/L	0.908	N/A	(0%-20%)	SKJ	07/11/17 14:40
Molybdenum	50.0		4.99		58.2	ug/L	0.465	106	(0%-20%)	BAJ	07/07/17 22:11
Nickel	50.0		46.1		89.2	ug/L	1.89	86.2	(0%-20%)		
Selenium	50.0	U	2.00		48.9	ug/L	1.87	96.8	(0%-20%)		
Strontium	50.0	D	1550	D	1580	ug/L	0.546	N/A	(0%-20%)		07/10/17 15:41
Thallium	50.0	U	0.600		44.2	ug/L	2.55	88.1	(0%-20%)		07/07/17 22:11
Thorium	50.0	U	0.700		50.0	ug/L	0.0519	99.2	(0%-20%)		
Uranium	50.0		0.838		50.2	ug/L	2.27	98.8	(0%-20%)		
Zinc	50.0		1630		1560	ug/L	4.95	N/A	(0%-20%)		
QC1203818334 426169001 SDILT											
Aluminum		B	24.9	DU	96.5	ug/L	N/A		(0%-20%)		07/07/17 22:18

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QC Summary

Workorder: **426169**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS										
Batch 1676975										
Arsenic		28.3	D	5.53	ug/L	2.33		(0%-20%)	BAJ	07/07/17 22:18
Barium		447	D	89.4	ug/L	.101		(0%-20%)		
Beryllium	U	0.026	DU	1.00	ug/L	N/A		(0%-20%)		07/08/17 03:59
Cadmium	B	0.375	DU	1.50	ug/L	N/A		(0%-20%)		07/07/17 22:18
Chromium	U	1.62	DU	15.0	ug/L	N/A		(0%-20%)		
Cobalt		2.20	BD	0.416	ug/L	5.33		(0%-20%)		
Copper		7.84	D	1.81	ug/L	15.6		(0%-20%)		
Lead	B	1.65	DU	2.50	ug/L	N/A		(0%-20%)		
Manganese	D	224	D	44.4	ug/L	1.13		(0%-20%)	SKJ	07/11/17 14:42
Molybdenum		4.99	D	0.920	ug/L	7.82		(0%-20%)	BAJ	07/07/17 22:18
Nickel		46.1	D	9.77	ug/L	5.92		(0%-20%)		
Selenium	U	0.528	DU	10.0	ug/L	N/A		(0%-20%)		
Strontium	D	155	D	29.9	ug/L	3.23		(0%-20%)		07/10/17 15:42
Thallium	U	0.113	DU	3.00	ug/L	N/A		(0%-20%)		07/07/17 22:18
Thorium	U	0.441	DU	3.50	ug/L	N/A		(0%-20%)		

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QC Summary

Workorder: **426169**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS										
Batch 1676975										
Uranium		0.838	BD	0.169	ug/L	.835		(0%-20%)	BAJ	07/07/17 22:18
Zinc		1630	D	346	ug/L	6.3		(0%-20%)		
Metals Analysis-ICP										
Batch 1676948										
QC1203818263 LCS										
Calcium	5000			4920	ug/L		98.4	(80%-120%)	HSC	06/30/17 14:41
Iron	5000			5170	ug/L		103	(80%-120%)		
Magnesium	5000			5070	ug/L		101	(80%-120%)		
Potassium	5000			4920	ug/L		98.4	(80%-120%)		
Sodium	5000			5430	ug/L		109	(80%-120%)		
Vanadium	500			493	ug/L		98.5	(80%-120%)		
QC1203818262 MB										
Calcium			U	50.0	ug/L					06/30/17 14:38
Iron			U	30.0	ug/L					
Magnesium			U	110	ug/L					
Potassium			U	50.0	ug/L					
Sodium			U	100	ug/L					
Vanadium			U	1.00	ug/L					

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QC Summary

Workorder: **426169**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP											
Batch 1676948											
QC1203818264 426165013 MS											
Calcium	5000		17500		22900	ug/L		108	(75%-125%)	HSC	06/30/17 14:47
Iron	5000	U	30.0		5140	ug/L		103	(75%-125%)		
Magnesium	5000		4090		9150	ug/L		101	(75%-125%)		
Potassium	5000		895		5960	ug/L		101	(75%-125%)		
Sodium	5000		12500		18000	ug/L		110	(75%-125%)		
Vanadium	500	B	4.72		510	ug/L		101	(75%-125%)		
QC1203818265 426165013 MSD											
Calcium	5000		17500		22500	ug/L	1.6	101	(0%-20%)		06/30/17 14:51
Iron	5000	U	30.0		5100	ug/L	0.889	102	(0%-20%)		
Magnesium	5000		4090		9070	ug/L	0.934	99.5	(0%-20%)		
Potassium	5000		895		5800	ug/L	2.72	98.1	(0%-20%)		
Sodium	5000		12500		17900	ug/L	0.424	109	(0%-20%)		
Vanadium	500	B	4.72		495	ug/L	3.07	98	(0%-20%)		
QC1203818266 426165013 SDILT											
Calcium			17500	D	3500	ug/L	.132		(0%-20%)		06/30/17 14:54
Iron		U	11.5	DU	150	ug/L	N/A		(0%-20%)		
Magnesium			4090	D	798	ug/L	2.48		(0%-20%)		

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QC Summary

Workorder: **426169**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP											
Batch 1676948											
Potassium			895	BD	128	ug/L	28.7		(0%-20%)	HSC	06/30/17 14:54
Sodium			12500	D	2640	ug/L	5.89		(0%-20%)		
Vanadium		B	4.72	DU	5.00	ug/L	N/A		(0%-20%)		
Metals Analysis-Mercury											
Batch 1677991											
QC1203820745 425780001 DUP											
Mercury		U	0.067	U	0.067	ug/L	N/A			MTM1	06/29/17 11:19
QC1203820741 LCS											
Mercury	2.00				2.06	ug/L		103	(80%-120%)		06/29/17 11:15
QC1203820740 MB											
Mercury				U	0.067	ug/L					06/29/17 11:10
QC1203820746 425780001 MS											
Mercury	2.00	U	0.067		2.02	ug/L		101	(75%-125%)		06/29/17 11:20
QC1203820747 425780001 SDILT											
Mercury		U	-0.012	DU	0.335	ug/L	N/A		(0%-10%)		06/29/17 11:22

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.
- 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.

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QC Summary

Workorder: **426169**

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

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 #: GEL426169
Work Order #: 426169

Product: **Carbon, Total Organic**
Analytical Method: SW846 9060A
Analytical Procedure: GL-GC-E-093 REV# 15
Analytical Batch: 1677460

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

GEL Sample ID#	Client Sample Identification
426169001	B3BBC0
1203820918	Method Blank (MB)
1203820919	Laboratory Control Sample (LCS)
1203820920	426169001(B3BBC0) Sample Duplicate (DUP)
1203820922	426169001(B3BBC0) 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 1203820920 (B3BBC0DUP), 1203820922 (B3BBC0PS) and 426169001 (B3BBC0) 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.

Analyte	426169 001
Total Organic Carbon #1	10X
Total Organic Carbon #2	10X
Total Organic Carbon #3	10X
Total Organic Carbon #4	10X
Total Organic Carbon Average	10X

Product: **Total Organic Halogens (TOX)**
Analytical Method: 9020_TOX
Analytical Procedure: GL-GC-E-007 REV# 14
Analytical Batch: 1681506

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

GEL Sample ID#	Client Sample Identification
426169001	B3BBC0
1203828910	Method Blank (MB)
1203828911	Laboratory Control Sample (LCS)
1203828912	426169001(B3BBC0) Sample Duplicate (DUP)
1203828913	426169001(B3BBC0) 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.

Miscellaneous Information

Additional Comments
A pair of nitrate wash blanks is analyzed at the start of the batch. Although they are designated as ICB, they are performed for calculating purposes only. The value of the nitrate wash blanks are averaged and subtracted from all samples. Neither of these values should exceed 0.6 ug Cl. The PQL limit typically applied to ICB results does not apply in this application, since the results are used only to determine background concentrations and are subtracted from all calculated results.

Breakthrough effect
The breakthrough effect was observed and confirmed for the following samples: 1203828912 (B3BBC0DUP), 1203828913 (B3BBC0PS) and 426169001 (B3BBC0). Breakthrough effect: If the value for a sample is greater than the reporting limit (10 ug/L), the result for the second slug should not be greater than 25% of the combined value of the first and second slug. Results which do not meet these criteria are designated with a "Fail" comment in the Breakthrough effect column on the Logbook page; however, the "fail" designation is not applicable for samples with a result of less than 10 ug/L.

Product: **Ammonia Nitrogen**
Preparation Method: EPA 350.1
Preparation Procedure: GL-GC-E-106 REV# 9
Preparation Batch: 1676102

Preparation Method: EPA 350.1 Prep
Preparation Procedure: GL-GC-E-072 REV# 17
Preparation Batch: 1676101

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

GEL Sample ID#	Client Sample Identification
426169001	B3BBC0
1203816312	Method Blank (MB)
1203816313	Laboratory Control Sample (LCS)
1203818951	426169001(B3BBC0) Sample Duplicate (DUP)
1203818952	426169001(B3BBC0) Matrix Spike (MS)

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

Method Blank (MB) Statement
The MBs 1203816312 (MB) and 426169001 (B3BBC0) analyzed with this SDG met the acceptance criteria. In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data.

Technical Information

Sample Re-analysis
Samples1203816312 (MB) and 1203816313 (LCS) were re-analyzed due to CCV failure. The reanalysis data with passing instrument QC was reported.

Product: **Solids, Total Dissolved**
Analytical Method: 2540C_TDS
Analytical Procedure: GL-GC-E-001 REV# 15
Analytical Batch: 1676659

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

GEL Sample ID#	Client Sample Identification
426169001	B3BBC0
1203817580	Method Blank (MB)
1203817581	Laboratory Control Sample (LCS)
1203819036	426169001(B3BBC0) Sample Duplicate (DUP)

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

Method Blank (MB) Statement
The MBs 1203817580 (MB) and 426169001 (B3BBC0) analyzed with this SDG met the acceptance criteria. In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data.

Product: **COD**
Analytical Method: EPA 410.4
Analytical Procedure: GL-GC-E-061 REV# 20
Analytical Batch: 1677051

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

GEL Sample ID#	Client Sample Identification
426169001	B3BBC0
1203818548	Method Blank (MB)
1203818549	Laboratory Control Sample (LCS)
1203818550	426169001(B3BBC0) Sample Duplicate (DUP)
1203818551	426169001(B3BBC0) Matrix Spike (MS)

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

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. 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.

Product: **Alkalinity**
Analytical Method: 2320_ALKALINITY
Analytical Procedure: GL-GC-E-033 REV# 13
Analytical Batch: 1678951

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

GEL Sample ID#	Client Sample Identification
426169001	B3BBC0
1203823050	Laboratory Control Sample (LCS)
1203823052	426169001(B3BBC0) Sample Duplicate (DUP)

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

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. 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.

Product: **pH**
Analytical Method: SW846 9040C
Analytical Procedure: GL-GC-E-008 REV# 22
Analytical Batch: 1678483

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

GEL Sample ID#	Client Sample Identification
426169001	B3BBC0
1203821877	Laboratory Control Sample (LCS)
1203821878	426169001(B3BBC0) Sample Duplicate (DUP)

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

Holding Times
Samples (See Below) were received by the laboratory outside of the method specified holding time. The data is qualified.

Sample	Analyte	Value
1203821878 (B3BBC0DUP)	pH	Received 23-JUN-17, out of holding 21-JUN-17
426169001 (B3BBC0)	pH	Received 23-JUN-17, out of holding 21-JUN-17

Product: **Specific Conductivity**
Analytical Method: SW846 9050A
Analytical Procedure: GL-GC-E-009 REV# 14
Analytical Batch: 1679220

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

GEL Sample ID#	Client Sample Identification
426169001	B3BBC0
1203823672	Laboratory Control Sample (LCS)
1203823674	426169001(B3BBC0) Sample Duplicate (DUP)

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

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. 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.

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.

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: GEL426169 GEL Work Order: 426169

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.

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

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: 20 JUL 2017 **Title: Analyst I**

Sample Data Summary

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

Certificate of Analysis

Report Date: July 20, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-003

Client Sample ID: B3BBC0
Sample ID: 426169001
Matrix: WATER
Collect Date: 21-JUN-17 11:02
Receive Date: 23-JUN-17
Collector: Client

Project: CPRC0F17003
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis												
9060_TOC: COMMON "As Received"												
Total Organic Carbon #1	D	35000	3300	10000	ug/L		10	TSM	07/01/17	0619	1677460	1
Total Organic Carbon #2	D	35300	3300	10000	ug/L		10					
Total Organic Carbon #3	D	35700	3300	10000	ug/L		10					
Total Organic Carbon #4	D	35600	3300	10000	ug/L		10					
Total Organic Carbon Average	D	35400	3300	10000	ug/L		10					
Halogen Analysis												
9020_TOX: COMMON "As Received"												
Total Organic Halogens		242	3.33	10.0	ug/L		1	RMJ	07/13/17	1751	1681506	2
Nutrient Analysis												
350.1_AMMONIA: COMMON "As Received"												
Nitrogen in Ammonia		786	17.0	50.0	ug/L	1.00	1	KLP1	06/27/17	1317	1676102	3
Solids Analysis												
2540C_TDS: COMMON "As Received"												
Total Dissolved Solids		1300000	3400	14300	ug/L			KLP1	06/26/17	1156	1676659	4
Spectrometric Analysis												
410.4_COD: COMMON "As Received"												
COD		130000	8950	20000	ug/L		1	VH1	06/27/17	1346	1677051	5
Titration and Ion Analysis												
2320_ALKALINITY: COMMON + (Add-on) "As Received"												
Alkalinity, Total as CaCO3		852000	1450	4000	ug/L			RXB5	06/30/17	1750	1678951	6
Bicarbonate alkalinity (CaCO3)		852000	1450	4000	ug/L							
Carbonate alkalinity (CaCO3)	U	1450	1450	4000	ug/L							
Hydroxide alkalinity as CaCO3	U	1450	1450	4000	ug/L							
9040_pH (AQUEOUS): COMMON "As Received"												
pH at Temp 20.9C	X	7.32	0.010	0.100	SU		1	RXB5	07/06/17	1441	1678483	7
9050_CONDUCTIVITY: COMMON "As Received"												
Conductivity		1990	1.00	1.00	umhos/cm		1	SXM7	07/06/17	0927	1679220	8

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.1 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXH3	06/27/17	1132	1676101

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

Certificate of Analysis

Report Date: July 20, 2017

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F17-003

Client Sample ID:	B3BBC0	Project:	CPRC0F17003
Sample ID:	426169001	Client ID:	CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060A	
2	9020_TOX	
3	EPA 350.1	
4	2540C_TDS	
5	EPA 410.4	
6	2320_ALKALINITY	
7	SW846 9040C	
8	SW846 9050A	

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

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

QC Summary

Report Date: July 20, 2017

CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington

Contact: **Mr. Scot Fitzgerald**

Workorder: **426169**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis											
Batch 1677460											
QC1203820920 426169001 DUP											
Total Organic Carbon Average		D	35400	D	37300	ug/L	5.28		(0%-20%)	TSM	07/01/17 07:06
QC1203820919 LCS											
Total Organic Carbon Average	10000				9630	ug/L		96.3	(80%-120%)		07/01/17 06:08
QC1203820918 MB											
Total Organic Carbon Average				U	330	ug/L					07/01/17 05:56
QC1203820922 426169001 PS											
Total Organic Carbon Average	10.0	D	3.54	D	13.5	mg/L		99.9	(75%-125%)		07/01/17 07:53
Halogen Analysis											
Batch 1681506											
QC1203828912 426169001 DUP											
Total Organic Halogens			242		220	ug/L	9.53		(0%-20%)	RMJ	07/13/17 18:12
QC1203828911 LCS											
Total Organic Halogens	100				101	ug/L		101	(80%-120%)		07/13/17 17:28
QC1203828910 MB											
Total Organic Halogens				U	3.33	ug/L					07/13/17 17:06
QC1203828913 426169001 PS											
Total Organic Halogens	100		242		342	ug/L		100	(75%-125%)		07/13/17 18:56
Nutrient Analysis											
Batch 1676102											
QC1203818951 426169001 DUP											
Nitrogen in Ammonia			786		771	ug/L	1.93		(0%-20%)	KLP1	06/27/17 13:18

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QC Summary

Workorder: **426169**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis										
Batch 1676102										
QC1203816313 LCS										
Nitrogen in Ammonia	1000			1070	ug/L		107	(80%-120%)	KLP1	06/27/17 12:51
QC1203816312 MB										
Nitrogen in Ammonia			B	37.9	ug/L					06/27/17 12:50
QC1203818952 426169001 MS										
Nitrogen in Ammonia	1000	786		1690	ug/L		90.4	(75%-125%)		06/27/17 13:19
Solids Analysis										
Batch 1676659										
QC1203819036 426169001 DUP										
Total Dissolved Solids		1300000		1330000	ug/L	1.96		(0%-20%)	KLP1	06/26/17 11:56
QC1203817581 LCS										
Total Dissolved Solids	300000			307000	ug/L		102	(80%-120%)		06/26/17 11:56
QC1203817580 MB										
Total Dissolved Solids			B	4290	ug/L					06/26/17 11:56
Spectrometric Analysis										
Batch 1677051										
QC1203818550 426169001 DUP										
COD		130000		132000	ug/L	1.47		(0%-20%)	VH1	06/27/17 13:46
QC1203818549 LCS										
COD	500000			470000	ug/L		94.1	(80%-120%)		06/27/17 13:46
QC1203818548 MB										
COD			U	8950	ug/L					06/27/17 13:46
QC1203818551 426169001 MS										
COD	500000	130000		584000	ug/L		90.8	(75%-125%)		06/27/17 13:47

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QC Summary

Workorder: **426169**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Titration and Ion Analysis											
Batch 1678483											
QC1203821878 426169001 DUP											
pH		X	7.32	X	7.35	SU	0.409		(0%-5%)	RXB5	07/06/17 14:41
QC1203821877 LCS											
pH	7.00				7.00	SU		100	(80%-120%)		07/06/17 14:35
Batch 1678951											
QC1203823052 426169001 DUP											
Alkalinity, Total as CaCO3			852000		848000	ug/L	0.494		(0%-20%)	RXB5	06/30/17 17:53
Bicarbonate alkalinity (CaCO3)			852000		848000	ug/L	0.494		(0%-20%)		
Carbonate alkalinity (CaCO3)		U	1450	U	1450	ug/L	N/A				
Hydroxide alkalinity as CaCO3		U	1450	U	1450	ug/L	N/A				
QC1203823050 LCS											
Alkalinity, Total as CaCO3	100000				110000	ug/L		110	(80%-120%)		06/30/17 17:31
Batch 1679220											
QC1203823674 426169001 DUP											
Conductivity			1990		1980	umhos/cm	0.706		(0%-20%)	SXM7	07/06/17 09:29
QC1203823672 LCS											
Conductivity	1410				1370	umhos/cm		96.7	(80%-120%)		07/06/17 09:05

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.

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QC Summary

Workorder: **426169**

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

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.