

July 8, 2016



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July 08, 2016

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

Re: CHPRC SAF F16-042
Work Order: 399216
SDG: GEL399216

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 11, 2016. 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: 304070 - 7H
Chain of Custody: F16-042-035 and F16-042-040
Enclosures



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Case Narrative

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF F16-042
SDG: GEL399216

July 08, 2016

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 11, 2016, 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 and DER.

Sample Identification

The laboratory received the following samples:

Laboratory Identification	Sample Description
399216001	B35VP9
399216002	B35VR4

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.

July 8, 2016

B. Luthman
Brielle Luthman for
Heather Shaffer
Project Manager

Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL399216
Work Order #: 399216

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.

Quality Control (QC) Information

Method Blank (MB) Statement

The method blanks (MB) analyzed with this SDG met the exception criteria with the exception of potassium. In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data. 1203566362 (MB).

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. 399216002 (B35VR4).

Quality Control (QC) Information

Serial Dilution % Difference Statement

Not all the applicable analytes were within the established acceptance criteria. Matrix suppression may be suspected. The data has been qualified.

Sample	Analyte	Value
1203567684 (B35VR4SDILT)	Potassium	10.8 *(0%-10%)

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.

Quality Control (QC) Information

Method Blank (MB) Statement

The method blanks (MB) analyzed with this SDG met the exception criteria with the exception of antimony and arsenic. In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data.

General Chemistry

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.

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

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST		F16-042-035	PAGE 1 OF 1
COLLECTOR J.R. Aguilar/CHPRC	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 7H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION C9401, I-005	PROJECT DESIGNATION 100-NR-2 Drilling - Water	FIELD LOGBOOK NO. HNF-N-645-3/86	SAF NO. F16-042	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT FEDERAL EXPRESS
ICE CHEST NO. 605-302	OFFSITE PROPERTY NO. 60716	ACTUAL SAMPLE DEPTH 74.51'	COA 304070	BILL OF LADING/AIR BILL NO. 776497683868	
SHIPPED TO GEL Laboratories, LLC					

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 regulated for transportation per 49 CFR/DATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. NA	PRESERVATION HNO3 to pH <2	COOL <=6C
		HOLDING TIME 6 Months	14 Days
		TYPE OF CONTAINER G/P	G/P
		NO. OF CONTAINER(S) 1	1
		VOLUME 500mL	250mL
		SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS (Alkalinity);	2320, ALKALINITY; COMMON (Alkalinity);
SAMPLE NO. B35VP9	MATRIX* WATER	SAMPLE DATE JUN 09 2016	SAMPLE TIME 1438

399212 BL 6/11/16
399216
* All Samples Filtered

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM J.R. Aguilar/CHPRC	DATE/TIME JUN 09 2016 1500	RECEIVED BY/STORED IN SSU #1	DATE/TIME JUN 09 2016 1530
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME JUN 10 2016 1030	RECEIVED BY/STORED IN Lesly Wash / CHPRC	DATE/TIME JUN 10 2016 1030
RELINQUISHED BY/REMOVED FROM Lesly Wash / CHPRC	DATE/TIME JUN 10 2016 1400	RECEIVED BY/STORED IN FEPEX	DATE/TIME JUN 10 2016 1400
RELINQUISHED BY/REMOVED FROM FEPEX	DATE/TIME JUN 10 2016 1400	RECEIVED BY/STORED IN M. Knudsen / JRC	DATE/TIME 6-11-16 0900
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
(1) 6020_METALS_ICPMS: COMMON {Aluminum, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Molybdenum, Selenium};
6020_METALS_ICPMS: COMMON (Add-on) {Antimony, Arsenic, Manganese, Nickel, Silver, Strontium, Vanadium, Zinc};
6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Phosphorus};

LABORATORY SECTION 9 of 40	RECEIVED BY	TITLE	DATE/TIME
DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME
PRINTED ON 5/24/2016		TRVL NUM = TRVL-16-153	
FSR ID = FSR32675		A-6003-618 (REV 2)	

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F16-042-040	PAGE 1 OF 1
COLLECTOR J.R. Aguilera/CHPRC	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 7H	AIR QUALITY	DATA TURNAROUND 30 Days / 30 Days	
SAMPLING LOCATION C9401, I-005	PROJECT DESIGNATION 100-NR-2 Drilling - Water	FIELD LOGBOOK NO. HNF-N-645-3/84	SAF NO. F16-042	AIR QUALITY	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL	
ICE CHEST NO. 605-322	ACTUAL SAMPLE DEPTH 74.51'	OFFSITE PROPERTY NO. 6716	COA 304070	BILL OF LADING/AIR BILL NO. 776497683868			
SHIPPED TO GEL Laboratories, LLC	PRESERVATION HNO3 to pH <2	HOLDING TIME 6 Months	TYPE OF CONTAINER G/P	399212 BL 61116 399210			
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other	NO. OF CONTAINER(S) 1	VOLUME 500mL	SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS				
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. NA	SAMPLE DATE JUN 09 2016	SAMPLE TIME 1438					
SPECIAL HANDLING AND/OR STORAGE	FILTER						
SAMPLE NO. B35VR4	MATRIX* WATER						

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM J.R. Aguilera/CHPRC	RECEIVED BY/STORED IN SSU #1	DATE/TIME JUN 09 2016 1520	DATE/TIME JUN 09 2016 1520	(1) 6020_METALS_ICPMS: COMMON {Aluminum, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Antimony, Arsenic, Manganese, Nickel, Silver, Strontium, Vanadium, Zinc}; 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Phosphorus};	
RELINQUISHED BY/REMOVED FROM SSU-1	RECEIVED BY/STORED IN Lobby West	DATE/TIME JUN 10 2016 1030	DATE/TIME JUN 10 2016 1030	FILTER	
RELINQUISHED BY/REMOVED FROM CHPRC	RECEIVED BY/STORED IN FEDEX	DATE/TIME JUN 10 2016 1400	DATE/TIME JUN 10 2016 1400		
RELINQUISHED BY/REMOVED FROM Rox	RECEIVED BY/STORED IN M. Kinslow	DATE/TIME JUN 10 2016 1400	DATE/TIME JUN 10 2016 1400		
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME	DATE/TIME		
LABORATORY SECTION	TITLE				
FINAL SAMPLE DISPOSITION	DISPOSED BY				
PRINTED ON 5/24/2016	TRVL NUM = TRVL-16-153	A-6003-618 (REV 2)			

SAMPLE RECEIPT & REVIEW FORM

Client: <u>CPRC</u>		SDG/AR/COC/Work Order: <u>3992110</u>	<u>399217</u> BLU 11.16
Received By: <u>ML</u>		Date Received: <u>6-11-16</u>	
Suspected Hazard Information		*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.	
COC/Samples marked as radioactive?		Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>CPM 0</u>	
Classified Radioactive II or III by RSO?		If yes, Were swipes taken of sample containers < action levels?	
COC/Samples marked containing PCBs?			
Package, COC, and/or Samples marked as beryllium or asbestos containing?		If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.	
Shipped as a DOT Hazardous?		Hazard Class Shipped: UN#:	
Samples identified as Foreign Soil?			

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius <u>2C</u>
2a	Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>13046196L</u> Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	Do Low Level Perchlorate samples have headspace as required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
7	VOA vials contain acid preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(If unknown, select No)
8	VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
9	Are Encore containers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
10	Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
11	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
12	Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
13	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
14	Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16	Carrier and tracking number.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other <u>7764 9768</u> 3868 2C 3423 2C

Comments (Use Continuation Form if needed):

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 08 July 2016

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	LA160006
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122016-1
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	T104704235-16-11
Utah NELAP	SC000122016-20
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL399216
Work Order #: 399216

Product: Determination of Metals by ICP-MS
Analytical Method: 6020_METALS_ICPMS
Analytical Procedure: GL-MA-E-014 REV# 28
Analytical Batch: 1574072

Product: Determination of Metals by ICP
Analytical Method: 6010_METALS_ICP
Analytical Procedure: GL-MA-E-013 REV# 26
Analytical Batches: 1574121 and 1574612

Preparation Method: SW846 3005A
Preparation Procedure: GL-MA-E-006 REV# 13
Preparation Batches: 1574071, 1574120 and 1574611

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
399216001	B35VP9
399216002	B35VR4
1203566362	Method Blank (MB)ICP
1203567680	Method Blank (MB)ICP
1203566363	Laboratory Control Sample (LCS)
1203567681	Laboratory Control Sample (LCS)
1203566366	399103001(NonSDGL) Serial Dilution (SD)
1203567684	399216002(B35VR4L) Serial Dilution (SD)
1203566364	399103001(NonSDGS) Matrix Spike (MS)
1203567682	399216002(B35VR4S) Matrix Spike (MS)
1203566365	399103001(NonSDGSD) Matrix Spike Duplicate (MSD)
1203567683	399216002(B35VR4SD) Matrix Spike Duplicate (MSD)
1203566209	Method Blank (MB)ICP-MS
1203566210	Laboratory Control Sample (LCS)
1203566213	399216001(B35VP9L) Serial Dilution (SD)
1203566212	399216001(B35VP9S) Matrix Spike (MS)
1203566214	399216001(B35VP9SD) Matrix Spike Duplicate (MSD)

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

Data Summary:

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

Calibration Information

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. 399216002 (B35VR4)-ICP.

Quality Control (QC) Information

Method Blank (MB) Statement

The method blanks (MB) analyzed with this SDG met the exception criteria with the exception of potassium. In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data. 1203566362 (MB)-ICP. The method blanks (MB) analyzed with this SDG met the exception criteria with the exception of antimony and arsenic. In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data. ICP-MS.

Serial Dilution % Difference Statement

The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations 25x the IDL/MDL for CVAA, 50X the IDL/MDL for ICP and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. Not all the applicable analytes were within the established acceptance criteria. Matrix suppression may be suspected. The data has been qualified.

Sample	Analyte	Value
1203567684 (B35VR4SDILT)	Potassium	10.8 *(0%-10%)

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: GEL399216 GEL Work Order: 399216

The Qualifiers in this report are defined as follows:

- * Duplicate analysis not within control limits
- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- C Target analyte was detected in the sample and the associated blank. The associated blank concentration is \geq EQL or is $> 5\%$ of the measured concentration and/or decision level for associated samples.
- D Results are reported from a diluted aliquot of sample.
- M Duplicate precision not met.
- 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: 08 JUL 2016

Title: Data Validator

Sample Data Summary

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL399216

CONTRACT: CPRC0F16042

METHOD TYPE: SW846

SAMPLE ID:399216001

BASIS: As Received

DATE COLLECTED 09-JUN-16

CLIENT ID: B35VP9

LEVEL: Low

DATE RECEIVED 11-JUN-16

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	26.7	ug/L	B	15	50	50	1	MS	PRB	06/24/16 14:13	160624-4	1574072
7440-36-0	Antimony	1	ug/L	U	1	3	3	1	MS	PRB	06/24/16 14:13	160624-4	1574072
7440-38-2	Arsenic	4.11	ug/L	CB	1.7	5	5	1	MS	PRB	06/24/16 14:13	160624-4	1574072
7440-39-3	Barium	34.1	ug/L		0.6	2	2	1	MS	PRB	06/24/16 14:13	160624-4	1574072
7440-43-9	Cadmium	0.110	ug/L	U	0.11	1	1	1	MS	PRB	06/24/16 14:13	160624-4	1574072
7440-70-2	Calcium	29300	ug/L		50	200	200	1	P	HSC	06/20/16 16:23	062016-1	1574121
7440-47-3	Chromium	2	ug/L	U	2	10	10	1	MS	PRB	06/24/16 14:13	160624-4	1574072
7440-48-4	Cobalt	0.853	ug/L	B	0.1	1	1	1	MS	PRB	06/24/16 14:13	160624-4	1574072
7440-50-8	Copper	0.350	ug/L	U	0.35	1	1	1	MS	PRB	06/24/16 14:13	160624-4	1574072
7439-89-6	Iron	30	ug/L	U	30	100	100	1	P	HSC	06/20/16 16:23	062016-1	1574121
7439-92-1	Lead	0.50	ug/L	U	0.5	2	2	1	MS	PRB	06/24/16 14:13	160624-4	1574072
7439-95-4	Magnesium	6470	ug/L		110	300	300	1	P	HSC	06/20/16 16:23	062016-1	1574121
7439-96-5	Manganese	162	ug/L		1	5	5	1	MS	PRB	06/24/16 14:13	160624-4	1574072
7439-98-7	Molybdenum	9.99	ug/L		0.165	0.5	0.5	1	MS	PRB	06/24/16 14:13	160624-4	1574072
7440-02-0	Nickel	2.04	ug/L		0.5	2	2	1	MS	PRB	06/24/16 14:13	160624-4	1574072
7723-14-0	Phosphorous	60	ug/L	U	60	150	150	1	P	HSC	06/20/16 16:23	062016-1	1574121
7440-09-7	Potassium	5140	ug/L		50	150	150	1	P	HSC	06/23/16 09:43	062316-2	1574121
7782-49-2	Selenium	1.5	ug/L	U	1.5	5	5	1	MS	PRB	06/24/16 14:13	160624-4	1574072
7440-22-4	Silver	0.20	ug/L	U	0.2	1	1	1	MS	PRB	06/24/16 14:13	160624-4	1574072
7440-23-5	Sodium	88200	ug/L		100	300	300	1	P	HSC	06/20/16 16:23	062016-1	1574121
7440-24-6	Strontium	183	ug/L		2	10	10	1	MS	PRB	06/24/16 14:13	160624-4	1574072
7440-62-2	Vanadium	8.18	ug/L	B	4.5	10	10	1	MS	PRB	06/24/16 14:13	160624-4	1574072
7440-66-6	Zinc	10.4	ug/L		3.5	10	10	1	MS	PRB	06/24/16 14:13	160624-4	1574072

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1574072	1574071	SW846 3005A	50	mL	50	mL	06/14/16	JP1
1574121	1574120	SW846 3005A	50	mL	50	mL	06/14/16	JP1

***Analytical Methods:**

P SW846 3005A/6010C
MS SW846 3005A/6020A

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL399216

CONTRACT: CPRC0F16042

METHOD TYPE: SW846

SAMPLE ID:399216002

BASIS: As Received

DATE COLLECTED 09-JUN-16

CLIENT ID: B35VR4

LEVEL: Low

DATE RECEIVED 11-JUN-16

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	23.9	ug/L	B	15	50	50	1	MS	PRB	06/24/16 14:38	160624-4	1574072
7440-36-0	Antimony	1	ug/L	U	1	3	3	1	MS	PRB	06/24/16 14:38	160624-4	1574072
7440-38-2	Arsenic	4.16	ug/L	CB	1.7	5	5	1	MS	PRB	06/24/16 14:38	160624-4	1574072
7440-39-3	Barium	34.5	ug/L		0.6	2	2	1	MS	PRB	06/24/16 14:38	160624-4	1574072
7440-43-9	Cadmium	0.110	ug/L	U	0.11	1	1	1	MS	PRB	06/24/16 14:38	160624-4	1574072
7440-70-2	Calcium	31200	ug/L		50	200	200	1	P	JWJ	06/16/16 15:51	061616C-3	1574612
7440-47-3	Chromium	2	ug/L	U	2	10	10	1	MS	PRB	06/24/16 14:38	160624-4	1574072
7440-48-4	Cobalt	0.818	ug/L	B	0.1	1	1	1	MS	PRB	06/24/16 14:38	160624-4	1574072
7440-50-8	Copper	0.350	ug/L	U	0.35	1	1	1	MS	PRB	06/24/16 14:38	160624-4	1574072
7439-89-6	Iron	30	ug/L	U	30	100	100	1	P	JWJ	06/16/16 15:51	061616C-3	1574612
7439-92-1	Lead	0.50	ug/L	U	0.5	2	2	1	MS	PRB	06/24/16 14:38	160624-4	1574072
7439-95-4	Magnesium	6970	ug/L		110	300	300	1	P	JWJ	06/16/16 15:51	061616C-3	1574612
7439-96-5	Manganese	156	ug/L		1	5	5	1	MS	PRB	06/24/16 14:38	160624-4	1574072
7439-98-7	Molybdenum	10.1	ug/L		0.165	0.5	0.5	1	MS	PRB	06/24/16 14:38	160624-4	1574072
7440-02-0	Nickel	1.87	ug/L	B	0.5	2	2	1	MS	PRB	06/24/16 14:38	160624-4	1574072
7723-14-0	Phosphorous	60	ug/L	U	60	150	150	1	P	JWJ	06/16/16 15:51	061616C-3	1574612
7440-09-7	Potassium	5190	ug/L	M	50	150	150	1	P	JWJ	06/16/16 15:51	061616C-3	1574612
7782-49-2	Selenium	1.5	ug/L	U	1.5	5	5	1	MS	PRB	06/24/16 14:38	160624-4	1574072
7440-22-4	Silver	0.20	ug/L	U	0.2	1	1	1	MS	PRB	06/24/16 14:38	160624-4	1574072
7440-23-5	Sodium	92900	ug/L		100	300	300	1	P	JWJ	06/16/16 15:51	061616C-3	1574612
7440-24-6	Strontium	179	ug/L		2	10	10	1	MS	PRB	06/24/16 14:38	160624-4	1574072
7440-62-2	Vanadium	7.29	ug/L	B	4.5	10	10	1	MS	PRB	06/24/16 14:38	160624-4	1574072
7440-66-6	Zinc	9.55	ug/L	B	3.5	10	10	1	MS	PRB	06/24/16 14:38	160624-4	1574072

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1574072	1574071	SW846 3005A	50	mL	50	mL	06/14/16	JP1
1574612	1574611	SW846 3005A	50	mL	50	mL	06/15/16	SXW1

***Analytical Methods:**

P SW846 3005A/6010C
MS SW846 3005A/6020A

Quality Control Summary

July 8, 2016

GEL LABORATORIES LLC

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

QC Summary

Report Date: July 8, 2016

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CH2M Hill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 399216

Table with columns: Parmname, NOM, Sample, Qual, QC, Units, RPD/D%, REC%, Range, Anlst, Date, Time. Rows include Metals Analysis - ICPMS for various elements like Aluminum, Antimony, Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Selenium, Silver, Strontium, Vanadium, Zinc, and additional rows for QC1203566209.

July 8, 2016

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QC Summary

Workorder: 399216

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1574072										
Arsenic			B	1.73	ug/L						
Barium			U	0.600	ug/L				PRB	06/24/16	14:00
Cadmium			U	0.110	ug/L						
Chromium			U	2.00	ug/L						
Cobalt			U	0.100	ug/L						
Copper			U	0.350	ug/L						
Lead			U	0.500	ug/L						
Manganese			U	1.00	ug/L						
Molybdenum			U	0.165	ug/L						
Nickel			U	0.500	ug/L						
Selenium			U	1.50	ug/L						
Silver			U	0.200	ug/L						
Strontium			U	2.00	ug/L						
Vanadium			U	4.50	ug/L						
Zinc			U	3.50	ug/L						
QC1203566212 399216001 MS											
Aluminum	2000	B	26.7	2050	ug/L		101	(75%-125%)		06/24/16	14:16
Antimony	50.0	U	1.00	49.8	ug/L		98.6	(75%-125%)			
Arsenic	50.0	BC	4.11	55.1	ug/L		102	(75%-125%)			
Barium	50.0		34.1	82.7	ug/L		97.1	(75%-125%)			
Cadmium	50.0	U	0.110	48.7	ug/L		97.5	(75%-125%)			
Chromium	50.0	U	2.00	48.5	ug/L		95.9	(75%-125%)			
Cobalt	50.0	B	0.853	47.4	ug/L		93.2	(75%-125%)			

July 8, 2016

GEL LABORATORIES LLC

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QC Summary

Workorder: 399216

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1574072										
Copper	50.0	U	0.350	48.6	ug/L		96.6	(75%-125%)	PRB	06/24/16	14:16
Lead	50.0	U	0.500	45.9	ug/L		91.7	(75%-125%)			
Manganese	50.0		162	201	ug/L		78.3	(75%-125%)			
Molybdenum	50.0		9.99	61.8	ug/L		104	(75%-125%)			
Nickel	50.0		2.04	48.8	ug/L		93.6	(75%-125%)			
Selenium	50.0	U	1.50	54.0	ug/L		106	(75%-125%)			
Silver	50.0	U	0.200	48.9	ug/L		97.9	(75%-125%)			
Strontium	50.0		183	244	ug/L		121	(75%-125%)			
Vanadium	50.0	B	8.18	57.5	ug/L		98.7	(75%-125%)			
Zinc	50.0		10.4	58.2	ug/L		95.7	(75%-125%)			
QC1203566214 399216001 MSD											
Aluminum	2000	B	26.7	2000	ug/L	2.55	98.8	(0%-20%)		06/24/16	14:19
Antimony	50.0	U	1.00	48.2	ug/L	3.15	95.5	(0%-20%)			
Arsenic	50.0	BC	4.11	53.4	ug/L	3.06	98.7	(0%-20%)			
Barium	50.0		34.1	81.2	ug/L	1.8	94.2	(0%-20%)			
Cadmium	50.0	U	0.110	46.8	ug/L	3.98	93.7	(0%-20%)			
Chromium	50.0	U	2.00	48.0	ug/L	1.07	94.8	(0%-20%)			
Cobalt	50.0	B	0.853	46.4	ug/L	2.12	91.2	(0%-20%)			
Copper	50.0	U	0.350	47.5	ug/L	2.38	94.3	(0%-20%)			
Lead	50.0	U	0.500	45.2	ug/L	1.6	90.3	(0%-20%)			
Manganese	50.0		162	199	ug/L	0.728	75.4	(0%-20%)			
Molybdenum	50.0		9.99	61.1	ug/L	1.13	102	(0%-20%)			

July 8, 2016

GEL LABORATORIES LLC

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

QC Summary

Workorder: 399216

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1574072										
Nickel	50.0	2.04		47.1	ug/L	3.55	90.2	(0%-20%)	PRB	06/24/16	14:19
Selenium	50.0	U	1.50	52.0	ug/L	3.81	102	(0%-20%)			
Silver	50.0	U	0.200	47.4	ug/L	3.3	94.7	(0%-20%)			
Strontium	50.0		183	232	ug/L	5	96.9	(0%-20%)			
Vanadium	50.0	B	8.18	56.8	ug/L	1.2	97.3	(0%-20%)			
Zinc	50.0		10.4	57.5	ug/L	1.34	94.1	(0%-20%)			
QC1203566213 399216001 SDILT											
Aluminum		B	26.7 DU	75.0	ug/L	N/A		(0%-10%)		06/24/16	14:26
Antimony		U	0.493 DU	5.00	ug/L	N/A		(0%-10%)			
Arsenic		BC	4.11 DU	8.50	ug/L	N/A		(0%-10%)			
Barium			34.1 D	6.33	ug/L	7.14		(0%-10%)			
Cadmium		U	0.003 DU	0.550	ug/L	N/A		(0%-10%)			
Chromium		U	0.610 DU	10.0	ug/L	N/A		(0%-10%)			
Cobalt		B	0.853 BD	0.173	ug/L	1.41		(0%-10%)			
Copper		U	0.293 DU	1.75	ug/L	N/A		(0%-10%)			
Lead		U	0.042 DU	2.50	ug/L	N/A		(0%-10%)			
Manganese			162 D	30.9	ug/L	4.44		(0%-10%)			
Molybdenum			9.99 D	1.95	ug/L	2.68		(0%-10%)			
Nickel			2.04 DU	2.50	ug/L	N/A		(0%-10%)			
Selenium		U	0.828 DU	7.50	ug/L	N/A		(0%-10%)			
Silver		U	0.001 DU	1.00	ug/L	N/A		(0%-10%)			
Strontium			183 D	35.0	ug/L	4.68		(0%-10%)			

July 8, 2016

GEL LABORATORIES LLC

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

QC Summary

Workorder: 399216

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1574072										
Vanadium		B	8.18	DU	22.5	ug/L	N/A	(0%-10%)	PRB	06/24/16	14:26
Zinc			10.4	DU	17.5	ug/L	N/A	(0%-10%)			
Metals Analysis-ICP											
Batch	1574121										
QC1203566363	LCS										
Calcium	5000				4950	ug/L	99	(80%-120%)	HSC	06/20/16	15:48
Iron	5000				4960	ug/L	99.2	(80%-120%)			
Magnesium	5000				4970	ug/L	99.4	(80%-120%)			
Phosphorous	500				484	ug/L	96.7	(80%-120%)			
Potassium	5000				4840	ug/L	96.9	(80%-120%)		06/23/16	09:09
Sodium	5000				5010	ug/L	100	(80%-120%)		06/20/16	15:48
QC1203566362	MB										
Calcium			U		50.0	ug/L				06/20/16	15:46
Iron			U		30.0	ug/L					
Magnesium			U		110	ug/L					
Phosphorous			U		60.0	ug/L					
Potassium			B		74.5	ug/L				06/23/16	09:06
Sodium			U		100	ug/L				06/20/16	15:46
QC1203566364	399103001 MS										
Calcium	5000		47300		53500	ug/L	N/A	(75%-125%)		06/20/16	15:54
Iron	5000	U	30.0		4880	ug/L	97.6	(75%-125%)			
Magnesium	5000		11200		16500	ug/L	105	(75%-125%)			
Phosphorous	500		7030		7750	ug/L	N/A	(75%-125%)			
Potassium	5000		8700		13700	ug/L	99.3	(75%-125%)		06/23/16	09:15

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GEL LABORATORIES LLC

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QC Summary

Workorder: 399216

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1574121										
Sodium	5000	28300		33900	ug/L		N/A	(75%-125%)		06/20/16	15:54
QC1203566365	399103001	MSD									
Calcium	5000	47300		55000	ug/L	2.7	N/A	(0%-20%)	HSC	06/20/16	15:57
Iron	5000	U	30.0	4850	ug/L	0.686	96.9	(0%-20%)			
Magnesium	5000		11200	16700	ug/L	1.54	110	(0%-20%)			
Phosphorous	500		7030	7950	ug/L	2.55	N/A	(0%-20%)			
Potassium	5000		8700	13600	ug/L	0.484	98	(0%-20%)		06/23/16	09:17
Sodium	5000		28300	34600	ug/L	2.2	N/A	(0%-20%)		06/20/16	15:57
QC1203566366	399103001	SDILT									
Calcium		47300	D	9530	ug/L	.82		(0%-10%)		06/20/16	16:00
Iron		U	6.15	DU	150	ug/L	N/A	(0%-10%)			
Magnesium			11200	D	2310	ug/L	2.96	(0%-10%)			
Phosphorous			7030	D	1380	ug/L	2.18	(0%-10%)			
Potassium			8700	D	1720	ug/L	1.01	(0%-10%)		06/23/16	09:20
Sodium			28300	D	5730	ug/L	1.11	(0%-10%)		06/20/16	16:00
Batch	1574612										
QC1203567681	LCS										
Calcium	5000			5170	ug/L		103	(80%-120%)	JWJ	06/16/16	15:48
Iron	5000			5080	ug/L		102	(80%-120%)			
Magnesium	5000			5210	ug/L		104	(80%-120%)			
Phosphorous	500			488	ug/L		97.6	(80%-120%)			
Potassium	5000			5050	ug/L		101	(80%-120%)			
Sodium	5000			5130	ug/L		103	(80%-120%)			
QC1203567680	MB										
Calcium		U	50.0		ug/L					06/16/16	15:45

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GEL LABORATORIES LLC

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

QC Summary

Workorder: 399216

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1574612										
Iron			U	30.0	ug/L						
Magnesium			U	110	ug/L				JWJ	06/16/16	15:45
Phosphorous			U	60.0	ug/L						
Potassium			U	50.0	ug/L						
Sodium			U	100	ug/L						
QC1203567682 399216002 MS											
Calcium	5000	31200		35900	ug/L		N/A	(75%-125%)		06/16/16	15:54
Iron	5000	U 30.0		4860	ug/L		97.1	(75%-125%)			
Magnesium	5000	6970		11800	ug/L		96.4	(75%-125%)			
Phosphorous	500	U 60.0		509	ug/L		95.1	(75%-125%)			
Potassium	5000	M 5190		9890	ug/L		94	(75%-125%)			
Sodium	5000	92900		94800	ug/L		N/A	(75%-125%)			
QC1203567683 399216002 MSD											
Calcium	5000	31200		36100	ug/L	0.461	N/A	(0%-20%)		06/16/16	15:56
Iron	5000	U 30.0		4880	ug/L	0.427	97.5	(0%-20%)			
Magnesium	5000	6970		11800	ug/L	0.195	96.9	(0%-20%)			
Phosphorous	500	U 60.0		518	ug/L	1.79	96.9	(0%-20%)			
Potassium	5000	M 5190		9910	ug/L	0.255	94.5	(0%-20%)			
Sodium	5000	92900		95200	ug/L	0.407	N/A	(0%-20%)			
QC1203567684 399216002 SDILT											
Calcium		31200	D	6600	ug/L	5.73		(0%-10%)		06/16/16	15:59
Iron		U 8.44	DU	150	ug/L	N/A		(0%-10%)			
Magnesium		6970	D	1490	ug/L	6.96		(0%-10%)			
Phosphorous		U 33.3	DU	300	ug/L	N/A		(0%-10%)			

GEL LABORATORIES LLC

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QC Summary

Workorder: 399216

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1574612										
Potassium	M	5190	DM	1150	ug/L	10.8*		(0%-10%)			
Sodium		92900	D	19400	ug/L	4.21		(0%-10%)	JWJ	06/16/16	15:59

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.
- 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 #: GEL399216
Work Order #: 399216

Product: Alkalinity

Analytical Method: 2320_ALKALINITY

Analytical Procedure: GL-GC-E-033 REV# 12

Analytical Batch: 1575584

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
399216001	B35VP9
1203570029	Method Blank (MB)
1203570030	Laboratory Control Sample (LCS)
1203570036	398861005(NonSDG) Sample Duplicate (DUP)
1203570038	398861005(NonSDG) 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.

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: GEL399216 GEL Work Order: 399216

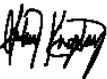
The Qualifiers in this report are defined as follows:

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

Review/Validation

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

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

Signature: 

Name: Aubrey Kingsbury

Date: 24 JUN 2016

Title: Analyst I

Sample Data Summary

July 8, 2016

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: June 24, 2016

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F16-042

Client Sample ID: B35VP9
Sample ID: 399216001
Matrix: WATER
Collect Date: 09-JUN-16 14:38
Receive Date: 11-JUN-16
Collector: Client
Project: CPRC0F16042
Client ID: CPRC001

Table with 11 columns: Parameter, Qualifier, Result, DL, RL, Units, DF, Analyst, Date, Time Batch, Method. Row 1: Titration and Ion Analysis. Row 2: 2320_ALKALINITY: COMMON "As Received". Row 3: Alkalinity, Total as CaCO3, 149000, 330, 1000, ug/L, 1, RXB5, 06/18/16, 1849, 1575584, 1.

The following Analytical Methods were performed:

Table with 3 columns: Method, Description, Analyst Comments. Row 1: 1, 2320_ALKALINITY.

Notes:

Quality Control Summary

July 8, 2016

GEL LABORATORIES LLC

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

QC Summary

Report Date: June 24, 2016

Page 1 of 1

CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 399216

Table with columns: Parmname, NOM, Sample, Qual, QC, Units, RPD%, REC%, Range, Anlst, Date, Time. Rows include Titration and Ion Analysis, Alkalinity, Total as CaCO3 for various samples and batches.

Notes:

The Qualifiers in this report are defined as follows:

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

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.