

6/9/2016



June 06, 2016

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

Re: CHPRC SAF F16-043
Work Order: 398288
SDG: GEL398288

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on May 27, 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 - 8C
Chain of Custody: F16-043-017
Enclosures

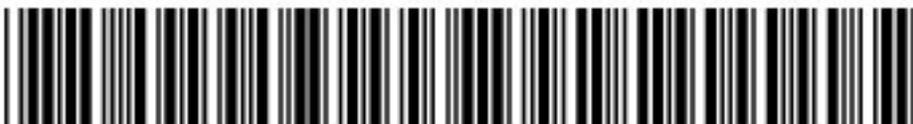


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Case Narrative

**General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF F16-043
SDG: GEL398288**

June 06, 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 May 27, 2016, 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. 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 sample:

Laboratory Identification	Sample Description
398288001	B35VD3

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, Metals and Radiochemistry.

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

6/9/2016

B. Luthman
Brielle Luthman for
Heather Shaffer
Project Manager

Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL398288
Work Order #: 398288

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.

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. 1203557593 (MB).

Matrix Spike (MS/MSD) Recovery Statement

The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analyte. The post spike also did not meet the required control limits; thus, confirming matrix interferences and/or sample non-homogeneity.

Sample	Analyte	Value
1203557596 (B35VD3MS)	Calcium	278* (75%-125%)
	Magnesium	181* (75%-125%)
	Potassium	42.7* (75%-125%)

Duplicate Relative Percent Difference (RPD) Statement

Not all the applicable analyte RPD values were within the acceptance criteria.

Sample	Analyte	Value
1203557595 (B35VD3DUP)	Potassium	43.4* (0%-20%)

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.

Calibration Information

CRDL/PQL Requirements

The CRDL standard recoveries for SW846 6020A/6020B met the advisory control limits with the exception of molybdenum. Client sample concentrations were less than the MDL or greater than two times the PQL; therefore the data were not adversely affected.

Quality Control (QC) Information

Method Blank (MB) Statement

The method blanks (MB) analyzed with this SDG met the exception criteria with the exception of copper and zinc. In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data. 1203557635 (MB).

Matrix Spike (MS/MSD) Recovery Statement

The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analytes. The post spike recoveries were within the required control limits. This verifies the absence of a matrix interference in the post-spike digested sample. The recoveries may be attributed to possible sample matrix interference and/or non-homogeneity.

Sample	Analyte	Value
1203557638 (B35VD3MS)	Copper	6.86* (75%-125%)
	Molybdenum	14.6* (75%-125%)
	Nickel	71.1* (75%-125%)
	Strontium	185* (75%-125%)
	Vanadium	302* (75%-125%)

Duplicate Relative Percent Difference (RPD) Statement

Not all the applicable analyte RPD values were within the acceptance criteria.

Sample	Analyte	Value
1203557637 (B35VD3DUP)	Aluminum	36.2* (0%-20%)
	Barium	25.9* (0%-20%)
	Chromium	113* (0%-20%)
	Cobalt	31.1* (0%-20%)
	Copper	50.6* (0%-20%)
	Molybdenum	4136* (+/-200 ug/kg)
	Vanadium	61.2* (0%-20%)

Technical Information

Sample Dilutions

The ICPMS solid samples in this SDG were diluted the standard two times.

Analyte	398288 001
Several	2X

General Chemistry

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
1203557641 (B35VB5DUP)	pH	Received 25-MAY-16, out of holding 24-MAY-16
398288001 (B35VD3)	pH	Received 27-MAY-16, out of holding 25-MAY-16

Radiochemistry

Dry Weight

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

SAMPLE RECEIPT & REVIEW FORM

Client: <u>CPRC</u>		SDG/AR/COC/Work Order:
Received By: <u>MLK</u>		Date Received: <u>5-27-16</u>
Suspected Hazard Information	Yes <input type="checkbox"/> No <input type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u>
Classified Radioactive II or III by RSO?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Package, COC, and/or Samples marked as beryllium or asbestos containing?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?	Yes <input type="checkbox"/> No <input type="checkbox"/>	

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>2° 3°</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>130461A6L</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>7763 8384 4157 20*</u> <u>7472 1516 3°</u> <u>7472 1674 3°</u> <u>8087 4849 2°*</u>

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 06 June 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 #: GEL398288
Work Order #: 398288

Product: Determination of Metals by ICP**Analytical Method:** 6010_METALS_ICP**Analytical Procedure:** GL-MA-E-013 REV# 26**Analytical Batch:** 1570767**Product: Determination of Metals by ICP-MS****Analytical Method:** 6020_METALS_ICPMS**Analytical Procedure:** GL-MA-E-014 REV# 28**Analytical Batch:** 1570792**Preparation Method:** SW846 3050B**Preparation Procedure:** GL-MA-E-009 REV# 26**Preparation Batches:** 1570764 and 1570791

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
398288001	B35VD3
1203557593	Method Blank (MB) ICP
1203557594	Laboratory Control Sample (LCS)
1203557597	398288001(B35VD3L) Serial Dilution (SD)
1203557595	398288001(B35VD3D) Sample Duplicate (DUP)
1203557596	398288001(B35VD3S) Matrix Spike (MS)
1203559835	398288001(B35VD3PS) Post Spike (PS)
1203557635	Method Blank (MB) ICP-MS
1203557636	Laboratory Control Sample (LCS)
1203557639	398288001(B35VD3L) Serial Dilution (SD)
1203557637	398288001(B35VD3D) Sample Duplicate (DUP)
1203557638	398288001(B35VD3S) Matrix Spike (MS)
1203559686	398288001(B35VD3PS) Post Spike (PS)

The samples in this SDG were analyzed on a "dry weight" 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. ICP. The CRDL standard recoveries for SW846 6020A/6020B met the advisory control limits with the exception of molybdenum. Client sample concentrations were less than the MDL

or greater than two times the PQL; therefore the data were not adversely affected. ICP-MS.

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. 1203557593 (MB)-ICP. The method blanks (MB) analyzed with this SDG met the exception criteria with the exception of copper and zinc. In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data. 1203557635 (MB)-ICP-MS.

Matrix Spike (MS/MSD) Recovery Statement

The percent recoveries (%R) obtained from the MS/MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analyte. The post spike also did not meet the required control limits; thus, confirming matrix interferences and/or sample non-homogeneity.

Sample	Analyte	Value
1203557596 (B35VD3MS)	Calcium	278* (75%-125%)
	Magnesium	181* (75%-125%)
	Potassium	42.7* (75%-125%)

The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analytes. The post spike recoveries were within the required control limits. This verifies the absence of a matrix interference in the post-spike digested sample. The recoveries may be attributed to possible sample matrix interference and/or non-homogeneity.

Sample	Analyte	Value
1203557638 (B35VD3MS)	Copper	6.86* (75%-125%)
	Molybdenum	14.6* (75%-125%)
	Nickel	71.1* (75%-125%)
	Strontium	185* (75%-125%)
	Vanadium	302* (75%-125%)

Duplicate Relative Percent Difference (RPD) Statement

The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required reporting limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. Not all the applicable analyte RPD values were within the acceptance criteria.

Sample	Analyte	Value
1203557595 (B35VD3DUP)	Potassium	43.4* (0%-20%)
1203557637 (B35VD3DUP)	Aluminum	36.2* (0%-20%)
	Barium	25.9* (0%-20%)
	Chromium	113* (0%-20%)

	Cobalt	31.1* (0%-20%)
	Copper	50.6* (0%-20%)
	Molybdenum	4136* (+/-200 ug/kg)
	Vanadium	61.2* (0%-20%)

Technical Information

Preparation/Analytical Method Verification

Method SW-846 3050B is not a total digestion technique for most samples. It is a very strong acid digestion that will dissolve almost all elements that could become environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

Sample Dilutions

Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The ICPMS solid samples in this SDG were diluted the standard two times. ICP-MS.

	398288
Analyte	001
Several	2X 1X

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: GEL398288 GEL Work Order: 398288

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: 09 JUN 2016

Title: Data Validator

Sample Data Summary

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL398288

CONTRACT: CPRC0F16043

METHOD TYPE: SW846

SAMPLE ID: 398288001

BASIS: Dry Weight

DATE COLLECTED 25-MAY-16

CLIENT ID: B35VD3

LEVEL: Low

DATE RECEIVED 27-MAY-16

MATRIX: SOIL

%SOLIDS: 92.4

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	4030000	ug/kg	D*	3020	10100	50	2	MS	BAJ	06/01/16 19:28	160601-3	1570792
7440-36-0	Antimony	628	ug/kg	B	310	941	941	1	P	LS	05/31/16 16:29	053116A-2	1570767
7440-38-2	Arsenic	903	ug/kg	BD	201	1010	10	2	MS	BAJ	06/02/16 14:20	160602-4	1570792
7440-39-3	Barium	38400	ug/kg	D*	101	403	20	2	MS	BAJ	06/01/16 19:28	160601-3	1570792
7440-43-9	Cadmium	25.6	ug/kg	BD	20.1	201	5	2	MS	BAJ	06/01/16 19:28	160601-3	1570792
7440-70-2	Calcium	1420000	ug/kg	N	7530	23500	23500	1	P	LS	06/01/16 09:07	060116-1	1570767
7440-47-3	Chromium	31600	ug/kg	D*	201	604	10	2	MS	BAJ	06/02/16 14:20	160602-4	1570792
7440-48-4	Cobalt	2910	ug/kg	D*	60.4	201	20	2	MS	BAJ	06/01/16 19:28	160601-3	1570792
7440-50-8	Copper	11200	ug/kg	D*N	66.5	201	8	2	MS	BAJ	06/01/16 19:28	160601-3	1570792
7439-89-6	Iron	7160000	ug/kg		7530	23500	23500	1	P	LS	06/01/16 09:07	060116-1	1570767
7439-92-1	Lead	1940	ug/kg	D	101	403	15	2	MS	BAJ	06/01/16 19:28	160601-3	1570792
7439-95-4	Magnesium	1810000	ug/kg	N	8000	28200	28200	1	P	LS	06/01/16 09:07	060116-1	1570767
7439-96-5	Manganese	168000	ug/kg	D	201	1010	5	2	MS	BAJ	06/02/16 14:20	160602-4	1570792
7439-98-7	Molybdenum	4620	ug/kg	D*N	60.4	201	20	2	MS	BAJ	06/02/16 19:24	160602-7	1570792
7440-02-0	Nickel	7510	ug/kg	DN	101	403	40	2	MS	BAJ	06/01/16 19:28	160601-3	1570792
7723-14-0	Phosphorous	244000	ug/kg		4700	14100	14100	1	P	LS	06/01/16 09:07	060116-1	1570767
7440-09-7	Potassium	785000	ug/kg	*N	6020	23500	23500	1	P	LS	06/01/16 09:07	060116-1	1570767
7782-49-2	Selenium	658	ug/kg	BD	332	1010	50	2	MS	BAJ	06/02/16 14:20	160602-4	1570792
7440-22-4	Silver	94.1	ug/kg	U	94.1	470	470	1	P	LS	06/01/16 09:07	060116-1	1570767
7440-23-5	Sodium	159000	ug/kg		6580	23500	23500	1	P	LS	06/01/16 09:07	060116-1	1570767
7440-24-6	Strontium	12300	ug/kg	DN	403	2010	10	2	MS	BAJ	06/01/16 19:28	160601-3	1570792
7440-62-2	Vanadium	16900	ug/kg	D*N	302	1010	1010	2	MS	BAJ	06/02/16 14:20	160602-4	1570792
7440-66-6	Zinc	18000	ug/kg	D	403	2010	25	2	MS	BAJ	06/01/16 19:28	160601-3	1570792

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1570767	1570764	SW846 3050B	0.575	g	50	mL	05/27/16	JP1
1570792	1570791	SW846 3050B	0.537	g	50	mL	05/27/16	JP1

***Analytical Methods:**

P SW846 3050B/6010C
MS SW846 3050B/6020A

Quality Control Summary

GEL LABORATORIES LLC

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

QC Summary

Report Date: June 9, 2016

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CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 398288

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1570792										
QC1203557637 398288001 DUP											
Aluminum	*D	4030000	*D	5820000	ug/kg	36.2*		(0%-20%)	BAJ	06/01/16	19:30
Arsenic	BD	903	BD	836	ug/kg	7.69 ^		(+/-1000)		06/02/16	14:22
Barium	*D	38400	*D	49800	ug/kg	25.9*		(0%-20%)		06/01/16	19:30
Cadmium	BD	25.6	BD	33.0	ug/kg	25.3 ^		(+/-200)			
Chromium	*D	31600	*D	8780	ug/kg	113*		(0%-20%)		06/02/16	14:22
Cobalt	*D	2910	*D	3980	ug/kg	31.1*		(0%-20%)		06/01/16	19:30
Copper	*DN	11200	*D	6650	ug/kg	50.6*		(0%-20%)			
Lead	D	1940	D	2090	ug/kg	7.68 ^		(+/-400)			
Manganese	D	168000	D	180000	ug/kg	6.66		(0%-20%)		06/02/16	14:22
Molybdenum	*DN	4620	*D	484	ug/kg	162*^		(+/-200)		06/02/16	19:25
Nickel	DN	7510	D	6350	ug/kg	16.8		(0%-20%)		06/01/16	19:30
Selenium	BD	658	BD	976	ug/kg	38.9 ^		(+/-1000)		06/02/16	14:22
Strontium	DN	12300	D	14700	ug/kg	18.4		(0%-20%)		06/01/16	19:30
Vanadium	*DN	16900	*D	31700	ug/kg	61.2*		(0%-20%)		06/02/16	14:22
Zinc	D	18000	D	18900	ug/kg	4.72		(0%-20%)		06/01/16	19:30
QC1203557636 LCS											
Aluminum		198000	D	216000	ug/kg		109	(80%-120%)		06/01/16	19:25
Arsenic		4940	D	4460	ug/kg		90.3	(80%-120%)		06/02/16	14:18
Barium		4940	D	5080	ug/kg		103	(80%-120%)		06/01/16	19:25
Cadmium		4940	D	4480	ug/kg		90.7	(80%-120%)			

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QC Summary

Workorder: 398288

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Parname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1570792										
Chromium	4940		D	5430	ug/kg		110	(80%-120%)		06/02/16	14:18
Cobalt	4940		D	5450	ug/kg		110	(80%-120%)	BAJ	06/01/16	19:25
Copper	4940		D	5210	ug/kg		106	(80%-120%)			
Lead	4940		D	4870	ug/kg		98.5	(80%-120%)			
Manganese	4940		D	5200	ug/kg		105	(80%-120%)		06/02/16	14:18
Molybdenum	4940		D	5180	ug/kg		105	(80%-120%)		06/02/16	19:22
Nickel	4940		D	5010	ug/kg		101	(80%-120%)		06/01/16	19:25
Selenium	4940		D	3980	ug/kg		80.6	(80%-120%)		06/02/16	14:18
Strontium	4940		D	5080	ug/kg		103	(80%-120%)		06/01/16	19:25
Vanadium	4940		D	4990	ug/kg		101	(80%-120%)		06/02/16	14:18
Zinc	4940		D	4450	ug/kg		90.2	(80%-120%)		06/01/16	19:25
QC1203557635	MB										
Aluminum			DU	2800	ug/kg					06/01/16	19:22
Arsenic			DU	187	ug/kg					06/02/16	14:16
Barium			DU	93.5	ug/kg					06/01/16	19:22
Cadmium			DU	18.7	ug/kg						
Chromium			DU	187	ug/kg					06/02/16	14:16
Cobalt			DU	56.1	ug/kg					06/01/16	19:22
Copper			BD	103	ug/kg						
Lead			DU	93.5	ug/kg						
Manganese			DU	187	ug/kg					06/02/16	14:16
Molybdenum			DU	56.1	ug/kg					06/02/16	19:21
Nickel			DU	93.5	ug/kg					06/01/16	19:22

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QC Summary

Workorder: 398288

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1570792										
Selenium			DU	308	ug/kg				BAJ	06/02/16	14:16
Strontium			DU	374	ug/kg					06/01/16	19:22
Vanadium			DU	280	ug/kg					06/02/16	14:16
Zinc			BD	478	ug/kg					06/01/16	19:22
QC1203557638 398288001 MS											
Aluminum	183000	*D	4030000	D	5050000	ug/kg	N/A	(75%-125%)		06/01/16	19:33
Arsenic	4580	BD	903	D	4930	ug/kg	88.1	(75%-125%)		06/02/16	14:24
Barium	4580	*D	38400	D	61400	ug/kg	N/A	(75%-125%)		06/01/16	19:33
Cadmium	4580	BD	25.6	D	4320	ug/kg	93.9	(75%-125%)			
Chromium	4580	*D	31600	D	11400	ug/kg	N/A	(75%-125%)		06/02/16	14:24
Cobalt	4580	*D	2910	D	8490	ug/kg	122	(75%-125%)		06/01/16	19:33
Copper	4580	*DN	11200	DN	11500	ug/kg	6.86*	(75%-125%)			
Lead	4580	D	1940	D	5970	ug/kg	88.2	(75%-125%)			
Manganese	4580	D	168000	D	166000	ug/kg	N/A	(75%-125%)		06/02/16	14:24
Molybdenum	4580	*DN	4620	DN	5280	ug/kg	14.6*	(75%-125%)		06/02/16	19:27
Nickel	4580	DN	7510	DN	10800	ug/kg	71.1*	(75%-125%)		06/01/16	19:33
Selenium	4580	BD	658	D	4410	ug/kg	82	(75%-125%)		06/02/16	14:24
Strontium	4580	DN	12300	DN	20700	ug/kg	185*	(75%-125%)		06/01/16	19:33
Vanadium	4580	*DN	16900	DN	30700	ug/kg	302*	(75%-125%)		06/02/16	14:24
Zinc	4580	D	18000	D	21900	ug/kg	85.2	(75%-125%)		06/01/16	19:33
QC1203559686 398288001 PS											
Copper	25.0	*DN	55.4	D	78.4	ug/L	91.9	(80%-120%)		06/01/16	19:36
Molybdenum	25.0	*DN	22.9	D	48.3	ug/L	102	(80%-120%)		06/02/16	19:28

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QC Summary

Workorder: 398288

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1570792										
Nickel	25.0	DN	37.3	D	59.5	ug/L	89	(80%-120%)	BAJ	06/01/16	19:36
Strontium	25.0	DN	60.9	D	86.7	ug/L	103	(80%-120%)			
Vanadium	25.0	*DN	83.7	D	113	ug/L	118	(80%-120%)		06/02/16	14:27
QC1203557639	398288001	SDILT									
Aluminum		*D	20000	D	4270	ug/L	6.59	(0%-10%)		06/01/16	19:38
Arsenic		BD	4.48	DU	1010	ug/L	N/A	(0%-10%)		06/02/16	14:29
Barium		*D	190	D	39.1	ug/L	2.65	(0%-10%)		06/01/16	19:38
Cadmium		BD	0.127	DU	101	ug/L	N/A	(0%-10%)			
Chromium		*D	157	D	32.1	ug/L	2.38	(0%-10%)		06/02/16	14:29
Cobalt		*D	14.5	D	3.03	ug/L	4.7	(0%-10%)		06/01/16	19:38
Copper		*DN	55.4	D	12.0	ug/L	8.7	(0%-10%)			
Lead		D	9.61	D	2.04	ug/L	6.33	(0%-10%)			
Manganese		D	834	D	174	ug/L	4.09	(0%-10%)		06/02/16	14:29
Molybdenum		*DN	22.9	D	4.47	ug/L	2.38	(0%-10%)		06/02/16	19:30
Nickel		DN	37.3	D	7.39	ug/L	.941	(0%-10%)		06/01/16	19:38
Selenium		BD	3.27	DU	1660	ug/L	N/A	(0%-10%)		06/02/16	14:29
Strontium		DN	60.9	D	12.0	ug/L	1.6	(0%-10%)		06/01/16	19:38
Vanadium		*DN	83.7	D	16.0	ug/L	4.25	(0%-10%)		06/02/16	14:29
Zinc		D	89.4	D	20.3	ug/L	13.8	(0%-10%)		06/01/16	19:38
Metals Analysis-ICP											
Batch	1570767										
QC1203557595	398288001	DUP									
Antimony		B	628	B	724	ug/kg	14.2	^	(+/-975)	LS	05/31/16 16:32

GEL LABORATORIES LLC

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QC Summary

Workorder: 398288

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1570767										
Calcium	N	1420000		1320000	ug/kg	7.48		(0%-20%)		06/01/16	09:09
Iron		7160000		7150000	ug/kg	0.0371		(0%-20%)	LS		
Magnesium	N	1810000		1520000	ug/kg	17.7		(0%-20%)			
Phosphorous		244000		273000	ug/kg	11.1		(0%-20%)			
Potassium	*N	785000	*	505000	ug/kg	43.4*		(0%-20%)			
Silver	U	94.1	B	138	ug/kg	46.7 ^		(+/-487)			
Sodium		159000		168000	ug/kg	5.57		(0%-20%)			
QC1203557594	LCS										
Antimony		46600		37700	ug/kg		80.9	(80%-120%)		05/31/16	16:26
Calcium		466000		464000	ug/kg		99.6	(80%-120%)		06/01/16	09:04
Iron		466000		465000	ug/kg		99.9	(80%-120%)			
Magnesium		466000		459000	ug/kg		98.6	(80%-120%)			
Phosphorous		46600		45000	ug/kg		96.7	(80%-120%)			
Potassium		466000		459000	ug/kg		98.5	(80%-120%)			
Silver		46600		43200	ug/kg		92.8	(80%-120%)			
Sodium		466000		481000	ug/kg		103	(80%-120%)			
QC1203557593	MB										
Antimony			U	310	ug/kg					05/31/16	16:23
Calcium			U	7520	ug/kg					06/01/16	09:01
Iron			U	7520	ug/kg						
Magnesium			U	7990	ug/kg						
Phosphorous			U	4700	ug/kg						
Potassium			U	6020	ug/kg						
Silver			U	94.0	ug/kg						

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QC Summary

Workorder: 398288

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1570767										
Sodium			U	6580	ug/kg				LS	06/01/16	09:01
QC1203557596	398288001	MS									
Antimony	47000	B	628	44000	ug/kg		92.4	(75%-125%)		05/31/16	16:34
Calcium	470000	N	1420000	N	2720000	ug/kg	278 *	(75%-125%)		06/01/16	09:11
Iron	470000		7160000		8620000	ug/kg	N/A	(75%-125%)			
Magnesium	470000	N	1810000	N	2670000	ug/kg	181 *	(75%-125%)			
Phosphorous	47000		244000		321000	ug/kg	N/A	(75%-125%)			
Potassium	470000	*N	785000	N	986000	ug/kg	42.7 *	(75%-125%)			
Silver	47000	U	94.1	42700	ug/kg		90.7	(75%-125%)			
Sodium	470000		159000		724000	ug/kg	120	(75%-125%)			
QC1203559835	398288001	PS									
Calcium	5000	N	11800	20600	ug/L		175 *	(80%-120%)		06/01/16	16:21
Magnesium	5000	N	15300	26200	ug/L		219 *	(80%-120%)			
Potassium	5000	*N	6990	14800	ug/L		156 *	(80%-120%)			
QC1203557597	398288001	SDILT									
Antimony		B	6.67	DU	1550	ug/L	N/A	(0%-10%)		05/31/16	16:36
Calcium		N	15100	D	3200	ug/L	5.77	(0%-10%)		06/01/16	09:13
Iron			76100	D	15900	ug/L	4.69	(0%-10%)			
Magnesium		N	19300	D	3930	ug/L	1.91	(0%-10%)			
Phosphorous			2600	D	520	ug/L	.171	(0%-10%)			
Potassium		*N	8350	D	1720	ug/L	3.01	(0%-10%)			
Silver		U	0.912	DU	470	ug/L	N/A	(0%-10%)			
Sodium			1690	D	335	ug/L	1.17	(0%-10%)			

GEL LABORATORIES LLC

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QC Summary

Workorder: 398288

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
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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 \geq EQL or is > 5% of the measured concentration and/or decision level for associated samples.
- D Results are reported from a diluted aliquot of sample.
- E 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
 CH2M Hill Plateau Remediation Company (CPRC)
 SDG #: GEL398288
 Work Order #: 398288**

Product: pH**Analytical Method:** SW846 9045D**Analytical Procedure:** GL-GC-E-008 REV# 21**Analytical Batch:** 1570790

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
398288001	B35VD3
1203557640	Laboratory Control Sample (LCS)
1203557641	398144001(B35VB5) 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.

<u>Sample</u>	<u>Analyte</u>	<u>Value</u>
1203557641 (B35VB5DUP)	pH	Received 25-MAY-16, out of holding 24-MAY-16
398288001 (B35VD3)	pH	Received 27-MAY-16, out of holding 25-MAY-16

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

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**Qualifier Definition Report
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL398288 GEL Work Order: 398288

The Qualifiers in this report are defined as follows:

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: Kristen Mizzell

Date: 06 JUN 2016

Title: Analyst I

Sample Data Summary

6/9/2016

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: June 6, 2016

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF F16-043

Client Sample ID:	B35VD3	Project:	CPRC0F16043
Sample ID:	398288001	Client ID:	CPRC001
Matrix:	SOIL		
Collect Date:	25-MAY-16 14:40		
Receive Date:	27-MAY-16		
Collector:	Client		
Moisture:	7.56%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Titration and Ion Analysis											
9045_pH (Non-Aqueous):COMMON "As Received"											
pH at Temp 22.3C	X	9.14	0.010	0.100	SU	1	RXB5	05/27/16	1810	1570790	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9045D	

Notes:

Quality Control Summary

GEL LABORATORIES LLC

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

QC Summary

Report Date: June 6, 2016

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CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 398288

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Titration and Ion Analysis											
Batch	1570790										
QC1203557641	398144001	DUP									
pH	X	9.44	X	9.39	SU	0.531		(0%-30%)	RXB5	05/27/16	17:59
QC1203557640	LCS										
pH	7.00			7.01	SU		100	(70%-130%)		05/27/16	17:59

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 \geq EQL or is $>$ 5% of the measured concentration and/or decision level for associated samples.
- D Results are reported from a diluted aliquot of sample.
- N Spike Sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- 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.

Radiological Analysis

Case Narrative

**Radiochemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL398288
Work Order #: 398288**

Product: Dry Weight

Analytical Method: ASTM D 2216 (Modified)

Analytical Procedure: GL-OA-E-020 REV# 10

Analytical Batch: 1570544

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
398288001	B35VD3
1203557023	398249001(NonSDG) 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: GEL398288 GEL Work Order: 398288

The Qualifiers in this report are defined as follows:

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: Theresa Austin

Date: 06 JUN 2016

Title: Group Leader

Sample Data Summary

Rad
Certificate of Analysis
Sample Summary

SDG Number: GEL398288	Client: CPRC001	Project: CPRC0F16043
Lab Sample ID: 398288001	Date Collected: 05/25/2016 14:40	Matrix: SOIL
	Date Received: 05/27/2016 09:30	%Moisture: 7.6
Client ID: B35VD3		Prep Basis: "As Received"
Batch ID: 1570544	Method: ASTM D 2216 (Modified)	SOP Ref: GL-OA-E-020
Run Date: 05/27/2016 14:18	Analyst: CXC1	Instrument: SP-39020004
Data File:		Count Time:
Prep Batch: 1570544		
Prep Date: 05/27/2016 14:18		

CAS No.	Parmname	Qual	Result	Units	Recovery%	Acceptable Limits	MDC
	Moisture		7.56	percent	+/-		
Surrogate/Tracer recovery			Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
 The MDC is a sample specific MDC.

Quality Control Summary

GEL LABORATORIES LLC

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

QC Summary

Report Date: May 31, 2016

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Client : CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington 99352

Contact: Mr. Scot Fitzgerald

Workorder: 398288

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date	Time
Gravimetric Solids										
Batch	1570544									
QC1203557023	398249001	DUP								
Moisture		10.8		11.1	percent	RPD: 3	(0%-20%)	CXC1	05/27/16	14:18

Notes:

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

The Qualifiers in this report are defined as follows:

- * Duplicate analysis not within control limits
- + Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
- < Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide
- > Result greater than quantifiable range or greater than upper limit of the analysis range
- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- B The associated QC sample blank has a result $\geq 2X$ the MDA and, after corrections, result is \geq MDA for this sample
- C Target analyte was detected in the sample and the associated blank. The associated blank concentration is \geq EQL or is > 5% of the measured concentration and/or decision level for associated samples.
- D Results are reported from a diluted aliquot of sample.
- E 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.
- UX Gamma Spectroscopy--Uncertain identification
- W Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

** Indicates analyte is a surrogate compound.

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

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

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