

August 28, 2015



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gel.com

August 26, 2015

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

Re: CHPRC SAF X15-033
Work Order: 378438
SDG: GEL378438

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on August 01, 2015. 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,

Chelsea Seagle
Chelsea Seagle for
Heather Shaffer
Project Manager

Purchase Order: 300071JDBA 7H
Chain of Custody: X15-033-055
Enclosures



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Case Narrative

August 28, 2015

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF X15-033
SDG: GEL378438

August 26, 2015

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 August 01, 2015, 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
378438001	B31904
378438002	B31906

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.

This package, to the best of my knowledge, 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.

August 28, 2015

Chelsea Seagle for
Heather Shaffer
Project Manager

Chain of Custody and Supporting Documentation

61 lbs
C.O.C.#
X15-033-055
Page 1 of 2

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CH2M Hill Plateau Remediation Company
3784 38

Collector: J.C. Fulton/CHPRC
 SAF No.: X15-033
 Project Title: 100-BC-5 RI, JUNE 2015
 Shipped To (Lab): GEL Laboratories, LLC
 Protocol: CERCLA

Contact/Requester: Karen Waters-Husted
 Sampling Origin: Hanford Site
 Logbook No.: HNF-N-506 77 / 21
 Method of Shipment: Commercial Carrier
 Priority: 30 Days **PRIORITY**

Telephone No.: 509-376-4650
 Purchase Order/Charge Code: 303271
 Ice Chest No.: GWS-397
 Bill of Lading/Air Bill No.: 7741 81023580
 Offsite Property No.: 5840

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

SPECIAL INSTRUCTIONS Hold Time: No Yes
 Total Activity Exemption: No Yes

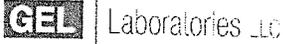
Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B31904	N	W	7-30-15	1041	1x250-mL G/P	4500D_SULFIDE: COMMON	7 Days	ZnAc+NaOH to pH > 9/Cool <=6C
B31904	N	W	1	1	1x500-mL G/P	6020_METALS_ICPMS: GW 01; 6010_METALS_ICP: GW 04	6 Months	HNO3 to pH <2
B31906	Y	W	7-30-15	1041	1x500-mL G/P	6020_METALS_ICPMS: GW 01; 6010_METALS_ICP: GW 04	6 Months	HNO3 to pH <2

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Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
J.C. Fulton/CHPRC			JUL 30 2015 1111	C.M. Aguilar/CHPRC	cmg		JUL 30 2015 1111	S = Soil, DS = Drum Solids, SE = Sediment, DL = Drum Liquids, SO = Solid, T = Tissue, SL = Sludge, WI = Wipe, W = Water, L = Liquid, O = Oil, V = Vegetation, A = Air, X = Other
C.M. Aguilar/CHPRC	cmg		JUL 30 2015 1115	SSU #1			JUL 30 2015 1115	
L.D. Wall/CHPRC	L.D. Wall		JUL 31 2015 0720	L.D. Wall/CHPRC	L.D. Wall		JUL 31 2015 0720	
FINAL SAMPLE DISPOSITION			JUL 31 2015 1400		FEDEX			

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

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SAMPLE RECEIPT & REVIEW FORM

Client: <u>OPRC</u>		SDG/AR/COC/Work Order: <u>38438</u>
Received By: <u>MK</u>		Date Received: <u>8-1-15</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>cpm 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 checked="" 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: <u>Ice bags</u> Blue ice Dry ice None Other (describe) <u>all temperatures are recorded in Celsius</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>EC032015830</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:
6 Do Low Level Perchlorate samples (EPA 6850) have headspace as required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If Preservation added, Lot#: Sample ID's and containers affected:
7 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:
8 Are Encore containers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
9 Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
10 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:
11 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
12 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
13 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14 COC form is properly signed in - relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15 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>7741 8398 7934 20</u> <u>7741 8102 3650 10</u> <u>7741 8632 0157 20</u> <u>7741 8102 3580 20</u> <u>7741 8398 8286 10</u>

Comments (Use Continuation Form if needed):

Data Review Qualifier Definitions

Project Specific Qualifier Definitions for GEL Client Code: **CPRC**

Code	Status	Qualifier Definition	CofA	Department	Fraction	Additional Comments
U	Programmed	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.	Y			Includes MDA, TPU, count uncert.
J	Programmed	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	Y	Organics		Organics only
P	Programmed	Aroclor target analyte with greater than 25% difference between column analyses.	Y	Organics		PCB only
C	Manual	Analyte has been confirmed by GC/MS analysis	Y	Organics	Pesticide	IF GC/MS confirmation was attempted but unsuccessful do not qualify with C
B	Programmed	The analyte was detected in both the associated QC blank and in the sample.	Y	Organics		
E	Manual	Concentration exceeds the calibration range of the instrument	Y	Organics		Qualifier Uploaded
A	Manual	The TIC is a suspected aldol-condensation product	Y	Organics	Semi-Volatile	Uploaded with TIC
X	Programmed	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			Replaces H Hold Date In RAD replaces UI. Same usage as standard X as well.
N	Programmed	Spike Sample recovery is outside control limits.	Y			
*	Programmed	Duplicate analysis not within control limits	Y	Inorganics		
>	Programmed	Result greater than quantifiable range or greater than upper limit of the analysis range	Y	General Chemistry		
Z	Manual	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			
B	Programmed	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).	Y	Inorganics	Metals	Replaces J Estimated Value
D	Programmed	Results are reported from a diluted aliquot of sample.	Y			Dilution
E	Programmed	Reported value is estimated due to interferences. See comment in narrative.	Y	Inorganics	Metals	GEL E
M	Manual	Duplicate precision not met.	Y	Inorganics	Metals	Replaces *
o	Programmed	Analyte failed to recover within LCS limits (Organics only)	Y	Organics		
S	Manual	Reported value determined by the Method of Standard Additions (MSA)	Y	Inorganics		Not coded B/C Rarely performed
T	Programmed	Spike and/or spike duplicate sample recovery is outside control limits.	Y	Organics		GC/MS only
W	Manual	Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.	Y	Inorganics		No GFAA in house.
B	Programmed	The associated QC sample blank has a result $\geq 2X$ the MDA and, after corrections, result is \geq MDA for this sample	Y	Radiological		
Y	Manual	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			
+	Manual	Correlation coefficient for Method of Standard Additions (MSA) is < 0.995	Y	Inorganics		
B	Programmed	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).	Y	General Chemistry		Replaces J Estimated Value
C	Programmed	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.	Y	Inorganics	Metals	Replaces B Blank Detection
C	Programmed	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.	Y	General Chemistry		Replaces B Blank Detection
<	Programmed	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide	Y	General Chemistry		for Reactive CN/S

Project Specific Qualifier Definitions for GEL Client Code: **CPRC**

Code	Status	Qualifier Definition	CofA	Department	Fraction	Additional Comments
UX	Manual	Gamma Spectroscopy--Uncertain identification	Y	Radiological		

Laboratory Certifications

List of current GEL Certifications as of 26 August 2015

State	Certification
Alaska	UST-110
Arkansas	88-0651
CLIA	42D0904046
California	2940 Interim
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC000122013-10
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-12-00283, P330-12-00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC000122013-10
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	LA150001
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC000122013-10
Nebraska	NE-OS-26-13
Nevada	SC000122014-1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68-00485
Plant Material Permit	PDEP-12-00260
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-15-10
Utah NELAP	SC000122015-18
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Metals Analysis

Case Narrative

August 28, 2015

Metals

Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL378438
Work Order #: 378438

Sample ID	Client ID
378438001	B31904
378438002	B31906
1203366053	Method Blank (MB)ICP
1203366054	Laboratory Control Sample (LCS)
1203366057	378443001(B31LT9L) Serial Dilution (SD)
1203366055	378443001(B31LT9S) Matrix Spike (MS)
1203366056	378443001(B31LT9SD) Matrix Spike Duplicate (MSD)
1203366096	Method Blank (MB)ICP-MS
1203381405	Method Blank (MB)ICP-MS
1203366097	Laboratory Control Sample (LCS)
1203381406	Laboratory Control Sample (LCS)
1203366100	378443001(B31LT9L) Serial Dilution (SD)
1203381409	378443001(B31LT9L) Serial Dilution (SD)
1203366098	378443001(B31LT9S) Matrix Spike (MS)
1203381407	378443001(B31LT9S) Matrix Spike (MS)
1203366099	378443001(B31LT9SD) Matrix Spike Duplicate (MSD)
1203381408	378443001(B31LT9SD) Matrix Spike Duplicate (MSD)

Sample Analysis

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

Method/Analysis Information

Analytical Batch:	1497238, 1497256 and 1503060
Prep Batch :	1497237, 1497255 and 1503059
Standard Operating Procedures:	GL-MA-E-013 REV# 24, GL-MA-E-006 REV# 12 and GL-MA-E-014 REV# 26
Analytical Method:	6010_METALS_ICP and 6020_METALS_ICPMS
Prep Method :	SW846 3005A

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with an ESI SC-FAST introduction, cyclonic spray

chamber, and yttrium or scandium internal standard.

The Metals analysis - ICPMS was performed on a PerkinElmer NexION 350X ICPMS. The instrument is equipped with a ESI PFA-ST nebulizer, quadrupole mass spectrometer, dual mode electron multiplier detector, and Kinetic Energy Discrimination (KED) technology. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum.

Calibration Information

Instrument Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL/PQL Requirements

The CRDL/PQL standard recoveries met the referenced advisory control limits.

ICSA/ICSAB Statement

All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blanks (CCB) Requirements

All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements

All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement

The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement

The following samples were selected as the quality control (QC) samples for this SDG: 378443001 (B31LT9)-ICP, ICP-MS and 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 matrix spike met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes.

MS/MSD Relative Percent Difference (RPD) Statement

The relative percent difference (RPD) obtained from the designated matrix spike duplicate (MSD) is evaluated based on acceptance criteria of 20%. The RPD values between qualifying analyte results in the MS and MSD were within the acceptance limits.

Serial Dilution % Difference Statement

All applicable analytes in the serial dilution (SDILT) demonstrated acceptable correlation to its associated sample and met the established acceptance percent difference criteria.

Technical Information

Holding Time Specifications

GEL assigns holding times based on the associated methodology. Holding time is measured by comparison of the date and time of sample collection to the date and time of sample preparation and analysis. Those holding

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times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

Sample Dilutions

The samples in this SDG did not require dilutions.

Preparation Information

The samples in this SDG were not diluted and prepared according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation

A data exception report was not required for this SDG.

Additional Comments

Additional comments were not required for this SDG.

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.

August 28, 2015

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: GEL378438 GEL Work Order: 378438

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.

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

Review/Validation

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

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

Signature:



Name: Nik-Cole Elmore

Date: 28 AUG 2015

Title: Data Validator

Sample Data Summary

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL378438

METHOD TYPE: SW846

SAMPLE ID: 378438001

CLIENT ID: B31904

CONTRACT: CPRC0X15033

MATRIX: WATER

DATE RECEIVED 01-AUG-15

LEVEL: Low

<u>CAS No</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>C</u>	<u>Qual</u>	<u>M*</u>	<u>MDL</u>	<u>DF</u>	<u>Inst ID</u>	<u>Analytical Run</u>
7429-90-5	Aluminum	15	ug/L	U		MS	15	1	ICPMS12	150821-2
7440-36-0	Antimony	1	ug/L	U		MS	1	1	ICPMS12	150824-10
7440-38-2	Arsenic	2.43	ug/L	B		MS	1.7	1	ICPMS12	150821-2
7440-39-3	Barium	32.9	ug/L			MS	0.6	1	ICPMS12	150821-2
7440-41-7	Beryllium	0.2	ug/L	U		MS	0.2	1	ICPMS12	150826-11
7440-42-8	Boron	17.3	ug/L	B		P	15	1	OPTIMA3	080715-1
7440-43-9	Cadmium	0.208	ug/L	B		MS	0.11	1	ICPMS12	150821-2
7440-70-2	Calcium	51100	ug/L			P	50	1	OPTIMA3	080715-1
7440-47-3	Chromium	34.9	ug/L			MS	2	1	ICPMS12	150826-11
7440-48-4	Cobalt	0.1	ug/L	U		MS	0.1	1	ICPMS12	150821-2
7440-50-8	Copper	0.35	ug/L	U		MS	0.35	1	ICPMS12	150821-2
7439-89-6	Iron	319	ug/L			P	30	1	OPTIMA3	080715-1
7439-92-1	Lead	0.525	ug/L	B		MS	0.5	1	ICPMS12	150821-2
7439-95-4	Magnesium	8460	ug/L			P	110	1	OPTIMA3	080715-1
7439-96-5	Manganese	8.14	ug/L			MS	1	1	ICPMS12	150821-2
7439-98-7	Molybdenum	2.44	ug/L			MS	0.165	1	ICPMS12	150821-2
7440-02-0	Nickel	0.995	ug/L	B		MS	0.5	1	ICPMS12	150826-11
7440-09-7	Potassium	4230	ug/L			P	50	1	OPTIMA3	080715-1
7782-49-2	Selenium	1.5	ug/L	U		MS	1.5	1	ICPMS12	150824-3
7440-22-4	Silver	0.2	ug/L	U		MS	0.2	1	ICPMS12	150821-2
7440-23-5	Sodium	11100	ug/L			P	100	1	OPTIMA3	080715-1
7440-24-6	Strontium	225	ug/L			MS	2	1	ICPMS12	150821-2
7440-28-0	Thallium	0.45	ug/L	U		MS	0.45	1	ICPMS12	150821-2
7440-29-1	Thorium	0.383	ug/L	U		MS	0.383	1	ICPMS12	150821-2
7440-31-5	Tin	1	ug/L	U		MS	1	1	ICPMS12	150824-3
7440-61-1	Uranium	1.8	ug/L			MS	0.067	1	ICPMS12	150821-2

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL378438

METHOD TYPE: SW846

SAMPLE ID: 378438001

CLIENT ID: B31904

CONTRACT: CPRC0X15033

MATRIX: WATER

DATE RECEIVED 01-AUG-15

LEVEL: Low

<u>CAS No</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>C</u>	<u>Qual</u>	<u>M*</u>	<u>MDL</u>	<u>DF</u>	<u>Inst ID</u>	<u>Analytical Run</u>
7440-62-2	Vanadium	3.55	ug/L	B		P	1	1	OPTIMA3	080715-1
7440-66-6	Zinc	3.5	ug/L	U		MS	3.5	1	ICPMS12	150821-2

*Analytical Methods:

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

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL378438

METHOD TYPE: SW846

SAMPLE ID: 378438002

CLIENT ID: B31906

CONTRACT: CPRC0X15033

MATRIX: WATER

DATE RECEIVED 01-AUG-15

LEVEL: Low

<u>CAS No</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>C</u>	<u>Qual</u>	<u>M*</u>	<u>MDL</u>	<u>DF</u>	<u>Inst ID</u>	<u>Analytical Run</u>
7429-90-5	Aluminum	15	ug/L	U		MS	15	1	ICPMS12	150821-2
7440-36-0	Antimony	1	ug/L	U		MS	1	1	ICPMS12	150824-10
7440-38-2	Arsenic	2.58	ug/L	B		MS	1.7	1	ICPMS12	150821-2
7440-39-3	Barium	32.1	ug/L			MS	0.6	1	ICPMS12	150821-2
7440-41-7	Beryllium	0.2	ug/L	U		MS	0.2	1	ICPMS12	150826-11
7440-42-8	Boron	16.3	ug/L	B		P	15	1	OPTIMA3	080715-1
7440-43-9	Cadmium	0.14	ug/L	B		MS	0.11	1	ICPMS12	150821-2
7440-70-2	Calcium	50200	ug/L			P	50	1	OPTIMA3	080715-1
7440-47-3	Chromium	31.5	ug/L			MS	2	1	ICPMS12	150826-11
7440-48-4	Cobalt	0.1	ug/L	U		MS	0.1	1	ICPMS12	150821-2
7440-50-8	Copper	0.35	ug/L	U		MS	0.35	1	ICPMS12	150821-2
7439-89-6	Iron	30	ug/L	U		P	30	1	OPTIMA3	080715-1
7439-92-1	Lead	0.5	ug/L	U		MS	0.5	1	ICPMS12	150821-2
7439-95-4	Magnesium	8230	ug/L			P	110	1	OPTIMA3	080715-1
7439-96-5	Manganese	1.04	ug/L	B		MS	1	1	ICPMS12	150821-2
7439-98-7	Molybdenum	2.48	ug/L			MS	0.165	1	ICPMS12	150821-2
7440-02-0	Nickel	0.5	ug/L	U		MS	0.5	1	ICPMS12	150826-11
7440-09-7	Potassium	4160	ug/L			P	50	1	OPTIMA3	080715-1
7782-49-2	Selenium	1.5	ug/L	U		MS	1.5	1	ICPMS12	150824-3
7440-22-4	Silver	0.2	ug/L	U		MS	0.2	1	ICPMS12	150821-2
7440-23-5	Sodium	10900	ug/L			P	100	1	OPTIMA3	080715-1
7440-24-6	Strontium	218	ug/L			MS	2	1	ICPMS12	150821-2
7440-28-0	Thallium	0.45	ug/L	U		MS	0.45	1	ICPMS12	150821-2
7440-29-1	Thorium	0.383	ug/L	U		MS	0.383	1	ICPMS12	150821-2
7440-31-5	Tin	1	ug/L	U		MS	1	1	ICPMS12	150824-3
7440-61-1	Uranium	1.77	ug/L			MS	0.067	1	ICPMS12	150821-2

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL378438

METHOD TYPE: SW846

SAMPLE ID: 378438002

CLIENT ID: B31906

CONTRACT: CPRC0X15033

MATRIX: WATER

DATE RECEIVED 01-AUG-15

LEVEL: Low

<u>CAS No</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>C</u>	<u>Qual</u>	<u>M*</u>	<u>MDL</u>	<u>DF</u>	<u>Inst ID</u>	<u>Analytical Run</u>
7440-62-2	Vanadium	3.39	ug/L	B		P	1	1	OPTIMA3	080715-1
7440-66-6	Zinc	3.5	ug/L	U		MS	3.5	1	ICPMS12	150821-2

*Analytical Methods:

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

Quality Control Summary

August 28, 2015

GEL LABORATORIES LLC

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

QC Summary

Report Date: August 28, 2015

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CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 378438

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1497256										
QC1203366097	LCS										
Aluminum	2000			2000	ug/L		99.8	(80%-120%)	BAJ	08/21/15	18:19
Antimony	50.0			53.7	ug/L		107	(80%-120%)		08/25/15	08:50
Arsenic	50.0			53.6	ug/L		107	(80%-120%)		08/21/15	18:19
Barium	50.0			54.9	ug/L		110	(80%-120%)			
Cadmium	50.0			52.5	ug/L		105	(80%-120%)			
Cobalt	50.0			52.2	ug/L		104	(80%-120%)			
Copper	50.0			53.5	ug/L		107	(80%-120%)			
Lead	50.0			52.4	ug/L		105	(80%-120%)			
Manganese	50.0			48.1	ug/L		96.3	(80%-120%)			
Molybdenum	50.0			51.1	ug/L		102	(80%-120%)			
Selenium	50.0			56.9	ug/L		114	(80%-120%)		08/24/15	17:59
Silver	50.0			53.0	ug/L		106	(80%-120%)		08/21/15	18:19
Strontium	50.0			47.0	ug/L		94	(80%-120%)			
Thallium	50.0			51.2	ug/L		102	(80%-120%)			
Thorium	50.0			55.6	ug/L		111	(80%-120%)			
Tin	50.0			56.8	ug/L		114	(80%-120%)		08/24/15	17:59
Uranium	50.0			57.9	ug/L		116	(80%-120%)		08/21/15	18:19
Zinc	50.0			49.3	ug/L		98.5	(80%-120%)			
QC1203366096	MB										
Aluminum			U	ND	ug/L					08/21/15	18:16

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QC Summary

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Parname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1497256										
Antimony			U	ND	ug/L					08/25/15	08:49
Arsenic			U	ND	ug/L				BAJ	08/21/15	18:16
Barium			U	ND	ug/L						
Cadmium			U	ND	ug/L						
Cobalt			U	ND	ug/L						
Copper			U	ND	ug/L						
Lead			U	ND	ug/L						
Manganese			U	ND	ug/L						
Molybdenum			U	ND	ug/L						
Selenium			U	ND	ug/L					08/24/15	17:57
Silver			U	ND	ug/L					08/21/15	18:16
Strontium			U	ND	ug/L						
Thallium			U	ND	ug/L						
Thorium			U	ND	ug/L						
Tin			U	ND	ug/L					08/24/15	17:57
Uranium			U	ND	ug/L					08/21/15	18:16
Zinc			U	ND	ug/L						
QC1203366098 378443001 MS											
Aluminum	2000	U	ND	2000	ug/L		99.6	(75%-125%)		08/21/15	18:44
Antimony	50.0	U	ND	50.9	ug/L		102	(75%-125%)		08/25/15	09:00
Arsenic	50.0	U	ND	54.4	ug/L		106	(75%-125%)		08/21/15	18:44
Barium	50.0	U	ND	52.5	ug/L		105	(75%-125%)			
Cadmium	50.0	U	ND	51.9	ug/L		104	(75%-125%)			

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QC Summary

Workorder: 378438

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1497256										
Cobalt	50.0	U	ND	50.7	ug/L		101	(75%-125%)	BAJ	08/21/15	18:44
Copper	50.0	U	ND	52.7	ug/L		105	(75%-125%)			
Lead	50.0	U	ND	52.6	ug/L		105	(75%-125%)			
Manganese	50.0	U	ND	48.4	ug/L		96.8	(75%-125%)			
Molybdenum	50.0	U	ND	49.8	ug/L		99.7	(75%-125%)			
Selenium	50.0	U	ND	56.7	ug/L		113	(75%-125%)		08/24/15	18:17
Silver	50.0	U	ND	52.3	ug/L		105	(75%-125%)		08/21/15	18:44
Strontium	50.0	U	ND	47.7	ug/L		95.3	(75%-125%)			
Thallium	50.0	U	ND	51.8	ug/L		104	(75%-125%)			
Thorium	50.0	U	ND	53.9	ug/L		108	(75%-125%)			
Tin	50.0	U	ND	54.8	ug/L		109	(75%-125%)		08/24/15	18:17
Uranium	50.0	U	ND	55.8	ug/L		112	(75%-125%)		08/21/15	18:44
Zinc	50.0	U	ND	49.0	ug/L		98	(75%-125%)			
QC1203366099 378443001 MSD											
Aluminum	2000	U	ND	1960	ug/L	2.08	97.5	(0%-20%)		08/21/15	18:47
Antimony	50.0	U	ND	51.7	ug/L	1.46	103	(0%-20%)		08/25/15	09:02
Arsenic	50.0	U	ND	52.9	ug/L	2.93	103	(0%-20%)		08/21/15	18:47
Barium	50.0	U	ND	51.4	ug/L	2.25	103	(0%-20%)			
Cadmium	50.0	U	ND	51.4	ug/L	0.827	103	(0%-20%)			
Cobalt	50.0	U	ND	51.2	ug/L	0.834	102	(0%-20%)			
Copper	50.0	U	ND	52.8	ug/L	0.283	106	(0%-20%)			
Lead	50.0	U	ND	51.9	ug/L	1.38	104	(0%-20%)			

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QC Summary

Workorder: 378438

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1497256										
Manganese	50.0	U	ND	47.9	ug/L	1.14	95.7	(0%-20%)	BAJ	08/21/15	18:47
Molybdenum	50.0	U	ND	50.1	ug/L	0.606	100	(0%-20%)			
Selenium	50.0	U	ND	57.6	ug/L	1.55	115	(0%-20%)		08/24/15	18:19
Silver	50.0	U	ND	52.2	ug/L	0.239	104	(0%-20%)		08/21/15	18:47
Strontium	50.0	U	ND	47.6	ug/L	0.304	95	(0%-20%)			
Thallium	50.0	U	ND	51.0	ug/L	1.55	102	(0%-20%)			
Thorium	50.0	U	ND	53.0	ug/L	1.79	106	(0%-20%)			
Tin	50.0	U	ND	57.8	ug/L	5.36	115	(0%-20%)		08/24/15	18:19
Uranium	50.0	U	ND	54.4	ug/L	2.48	109	(0%-20%)		08/21/15	18:47
Zinc	50.0	U	ND	48.5	ug/L	1.03	97	(0%-20%)			
QC1203366100 378443001 SDILT											
Aluminum		U	ND DU	ND	ug/L	N/A		(0%-10%)		08/21/15	18:53
Antimony		U	ND DU	ND	ug/L	N/A		(0%-10%)		08/25/15	09:03
Arsenic		U	ND DU	ND	ug/L	N/A		(0%-10%)		08/21/15	18:53
Barium		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Cadmium		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Cobalt		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Copper		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Lead		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Manganese		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Molybdenum		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Selenium		U	ND DU	ND	ug/L	N/A		(0%-10%)		08/24/15	18:24

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QC Summary

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1497256										
Silver	U	ND	DU	ND	ug/L	N/A		(0%-10%)	BAJ	08/21/15	18:53
Strontium	U	ND	DU	ND	ug/L	N/A		(0%-10%)			
Thallium	U	ND	DU	ND	ug/L	N/A		(0%-10%)			
Thorium	U	ND	DU	ND	ug/L	N/A		(0%-10%)			
Tin	U	ND	DU	ND	ug/L	N/A		(0%-10%)		08/24/15	18:24
Uranium	U	ND	DU	ND	ug/L	N/A		(0%-10%)		08/21/15	18:53
Zinc	U	ND	D	7.35	ug/L	N/A		(0%-10%)			
Batch	1503060										
QC1203381406	LCS										
Beryllium	50.0			58.5	ug/L		117	(80%-120%)	BAJ	08/26/15	22:48
Chromium	50.0			52.3	ug/L		105	(80%-120%)			
Nickel	50.0			50.8	ug/L		102	(80%-120%)			
QC1203381405	MB										
Beryllium		U		ND	ug/L					08/26/15	22:45
Chromium		U		ND	ug/L						
Nickel		U		ND	ug/L						
QC1203381407	378443001 MS										
Beryllium	50.0	U	ND	58.7	ug/L		117	(75%-125%)		08/26/15	23:13
Chromium	50.0	U	ND	51.0	ug/L		102	(75%-125%)			
Nickel	50.0	U	ND	50.9	ug/L		102	(75%-125%)			
QC1203381408	378443001 MSD										
Beryllium	50.0	U	ND	61.3	ug/L	4.32	123	(0%-20%)		08/26/15	23:16
Chromium	50.0	U	ND	52.5	ug/L	2.9	105	(0%-20%)			
Nickel	50.0	U	ND	51.5	ug/L	1.29	103	(0%-20%)			

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QC Summary

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1503060										
QC1203381409	378443001	SDILT									
Beryllium	U	ND	DU	ND	ug/L	N/A		(0%-10%)	BAJ	08/26/15	23:22
Chromium	U	ND	DU	ND	ug/L	N/A		(0%-10%)			
Nickel	U	ND	DU	ND	ug/L	N/A		(0%-10%)			
Metals Analysis-ICP											
Batch	1497238										
QC1203366054	LCS										
Boron	500			531	ug/L		106	(80%-120%)	HSC	08/07/15	08:47
Calcium	5000			5300	ug/L		106	(80%-120%)			
Iron	5000			5300	ug/L		106	(80%-120%)			
Magnesium	5000			5370	ug/L		107	(80%-120%)			
Potassium	5000			5140	ug/L		103	(80%-120%)			
Sodium	5000			5100	ug/L		102	(80%-120%)			
Vanadium	500			525	ug/L		105	(80%-120%)			
QC1203366053	MB										
Boron			U	ND	ug/L					08/07/15	08:43
Calcium			U	ND	ug/L						
Iron			U	ND	ug/L						
Magnesium			U	ND	ug/L						
Potassium			U	ND	ug/L						
Sodium			U	ND	ug/L						
Vanadium			U	ND	ug/L						
QC1203366055	378443001	MS									
Boron	500	U	ND	527	ug/L		105	(75%-125%)		08/07/15	08:53
Calcium	5000	U	ND	5260	ug/L		105	(75%-125%)			
Iron	5000	U	ND	5300	ug/L		106	(75%-125%)			

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QC Summary

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1497238										
Magnesium	5000	U	ND	5360	ug/L		107	(75%-125%)	HSC	08/07/15	08:53
Potassium	5000	U	ND	5110	ug/L		101	(75%-125%)			
Sodium	5000	U	ND	5190	ug/L		103	(75%-125%)			
Vanadium	500	U	ND	515	ug/L		103	(75%-125%)			
QC1203366056 378443001 MSD											
Boron	500	U	ND	530	ug/L	0.566	105	(0%-20%)		08/07/15	08:56
Calcium	5000	U	ND	5350	ug/L	1.77	107	(0%-20%)			
Iron	5000	U	ND	5310	ug/L	0.262	106	(0%-20%)			
Magnesium	5000	U	ND	5410	ug/L	0.897	108	(0%-20%)			
Potassium	5000	U	ND	5190	ug/L	1.59	103	(0%-20%)			
Sodium	5000	U	ND	5240	ug/L	0.987	104	(0%-20%)			
Vanadium	500	U	ND	521	ug/L	1.22	104	(0%-20%)			
QC1203366057 378443001 SDILT											
Boron		U	ND DU	ND	ug/L	N/A		(0%-10%)		08/07/15	08:59
Calcium		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Iron		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Magnesium		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Potassium		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Sodium		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Vanadium		U	ND DU	ND	ug/L	N/A		(0%-10%)			

Notes:

The Qualifiers in this report are defined as follows:

- * Duplicate analysis not within control limits

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QC Summary

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
+	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 #: GEL378438
Work Order #: 378438**

Method/Analysis Information

Product: Sulfide and Total
Analytical Batch: 1497301 **Method:** 4500_Sulfide: COMMON

Sample Analysis

The following samples were analyzed using the analytical protocol as established in 4500D_SULFIDE:

Sample ID	Client ID
378438001	B31904
1203366254	Method Blank (MB)
1203366255	Laboratory Control Sample (LCS)
1203366258	378438001(B31904) Sample Duplicate (DUP)
1203366259	378438001(B31904) Post Spike (PS)

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

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-052 REV# 7.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Spectrometric analysis was performed on a Spectronic 20D+ Digital Spectrophotometer.

Initial Calibration

All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Sample 378438001 (B31904) was selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Preservation/Integrity

All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

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.

August 28, 2015

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: GEL378438 GEL Work Order: 378438

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: Thomas Lewis

Date: 27 AUG 2015

Title: Data Validator

Sample Data Summary

August 28, 2015
GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: August 27, 2015

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF X15-033

Client Sample ID: B31904	Project: CPRC0X15033
Sample ID: 378438001	Client ID: CPRC001
Matrix: WATER	
Collect Date: 30-JUL-15 10:41	
Receive Date: 01-AUG-15	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
4500_Sulfide: COMMON "As Received"											
Total Sulfide	U	33.0	33.0	500	ug/L	1	SXC5	08/03/15	1502	1497301	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	4500D_SULFIDE	

Notes:

Quality Control Summary

August 28, 2015

GEL LABORATORIES LLC

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

QC Summary

Report Date: August 27, 2015

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CH2MHill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 378438

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Spectrometric Analysis											
Batch	1497301										
QC1203366258	378438001	DUP									
Total Sulfide		U	33.0	U	33.0	ug/L	N/A		SXC5	08/03/15	15:02
QC1203366255	LCS										
Total Sulfide	400				442	ug/L	111	(80%-120%)		08/03/15	14:39
QC1203366254	MB										
Total Sulfide			U		33.0	ug/L				08/03/15	14:38
QC1203366259	378438001	PS									
Total Sulfide	0.400	U	0.00993		0.434	mg/L	106	(29%-142%)		08/03/15	15:02

Notes:

The Qualifiers in this report are defined as follows:

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.