

January 12, 2015



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www.gel.com

January 07, 2015

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

Re: CHPRC SAF W15-012
Work Order: 363409
SDG: GEL363409

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on December 18, 2014. 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,

Hope Taylor for
Heather Shaffer
Project Manager

Purchase Order: 300071JDBA - 7H
Chain of Custody: W15-012-026 and W15-012-027
Enclosures



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Case Narrative

January 12, 2015

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF W15-012
SDG: GEL363409

January 07, 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 December 18, 2014, 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
363409001	B2YHH9
363409002	B2YHJ0
363409003	B2YHH8

Case Narrative

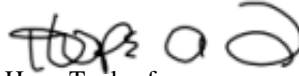
Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

January 12, 2015

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 Manger (or designee) and the laboratory's client services representative as verified by their signatures on this report.



Hope Taylor for
Heather Shaffer
Project Manager

Chain of Custody and Supporting Documentation

CH2M Hill Plateau Remediation Company		C.O.C. # W15-012-027	
363409		Page 1 of 1	
Collector	S.W. King/CHPRC	Contact/Requester	Karen Waters-Husted
SAF No.	W15-012	Telephone No.	509-376-4650
Project Title	RCRA, DECEMBER 2014	Purchase Order/Charge Code	300071JDBA
Shipped To (Lab)	GEL Laboratories, LLC	Ice Chest No.	605-435
Protocol	RCRA	Bill of Lading/Air Bill No.	172288223042
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		Offsite Property No.	5289
Priority: 30 Days SPECIAL INSTRUCTIONS PRIORITY		Hold Time	
Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Sample Analysis	Preservative
Sample No.	B2YHH9	Filter	N
Date	DEC 17 2014	No/Type Container	1x250-mL G/P
Time	1148	9056_ANIONS_IC: COMMON	
Holding Time	28 Days/48 Hours		Cool <=6C

Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time	Date/Time
S.W. King/CHPRC	<i>[Signature]</i>	<i>[Signature]</i>	L.B. Wall	<i>[Signature]</i>	<i>[Signature]</i>	1255	1255
Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time	Date/Time
CHPRC	<i>[Signature]</i>	<i>[Signature]</i>	CHPRC	<i>[Signature]</i>	<i>[Signature]</i>	DEC 17 2014	DEC 17 2014
Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time	Date/Time
CHPRC	<i>[Signature]</i>	<i>[Signature]</i>	FEDEX	<i>[Signature]</i>	<i>[Signature]</i>	1400	1400
Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time	Date/Time
CHPRC	<i>[Signature]</i>	<i>[Signature]</i>	H. Taylor	<i>[Signature]</i>	<i>[Signature]</i>	DEC 17 2014	121814 0930
Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time	Date/Time
CHPRC	<i>[Signature]</i>	<i>[Signature]</i>	FEDEX	<i>[Signature]</i>	<i>[Signature]</i>	DEC 17 2014	121814 0930

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Date/Time

CH2M Hill Plateau Remediation Company
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
 C.O.C. # **W15-012-026**
 Page 1 of 1

Collector: S.W. King/CHPRC
Contact/Requester: Karen Waters-Husted
Telephone No.: 509-376-4650
SAF No.: W15-012
Purchase Order/Charge Code: 300071JDBA
Project Title: RCRA, DECEMBER 2014
Sampling Origin: Hanford Site
Shipped To (Lab): GEL Laboratories, LLC
Logbook No.: HNF-N-506 71/30
Ice Chest No.: GWS-435
Method of Shipment: Commercial Carrier
Bill of Lading/Air Bill No.: 7772 0822 3042
Protocol: RCRA
Priority: 30 Days
Offsite Property No.: 5289
Hold Time: Total Activity Exemption: Yes No

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

Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B2YHJ0	Y	DEC 17 2014	1148	1x500-ml G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2
B2YHH8	N	DEC 17 2014	1148	1x250-ml G/P	2320_ALKALINITY: COMMON	14 Days	Cool <=6C
B2YHH8	N	DEC 17 2014	1148	1x500-ml G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2

SPECIAL INSTRUCTIONS

Received By: L.D. Wall CHPRC
 Sign: L.D. Wall
 Date/Time: DEC 17 2014 1255

Received By: FEDEX
 Date/Time: DEC 17 2014 1460

Received By: H. Taylor
 Sign: H. Taylor
 Date/Time: 12/18/14 0930

Received By: [Signature]
 Sign: [Signature]
 Date/Time: [Signature]

Matrix *
 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

FINAL SAMPLE DISPOSITION
 Disposal Method (e.g., Return to customer, per lab procedure, used in process)
 Disposed By
 Date/Time

PRINTED ON 10/23/2014
 A-6004-842 (REV 2)

January 12, 2015

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: <u>CPRC</u>	SDG/AR/COC/Work Order: <u>363409</u>
Received By: <u>H. Taylor</u>	Date Received: <u>121814</u>
Suspected Hazard Information	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0cpm</u>
Classified Radioactive II or III by RSO?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Package, COC, and/or Samples marked as beryllium or asbestos containing?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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 checked="" type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Preservation Method: <u>(ice bags)</u> Blue ice Dry ice None Other (describe) <u>2, 3</u> *all temperatures are recorded in Celsius
2a Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Temperature Device Serial #: <u>135532192</u> Secondary Temperature Device Serial # (If Applicable):
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6 VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Sample ID's and containers affected:
7 Are Encore containers present?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
8 Samples received within holding time?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ID's and tests affected:
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Sample ID's affected:
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Sample ID's affected:
12 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
14 Carrier and tracking number.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Circle Applicable: FedEx Air <u>11722</u> ✓ FedEx Ground <u>7801</u> UPS <u>5980</u> - 2 <u>8822</u> <u>2697</u> - 2 <u>8278</u> <u>5804</u> - 3 <u>8822</u> <u>3042</u> - 2 <u>8404</u> <u>8685</u> - 3

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials HJ Date 121814 Page 1 of 1

GL-CHL-SR-001
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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

Laboratory Certifications

List of current GEL Certifications as of 07 January 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
South Carolina Chemistry	10120001
South Carolina GVL	23611001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235-14-9
Utah NELAP	SC000122014-16
Vermont	VT87156
Virginia NELAP	460202
Washington	C780-12
Wisconsin	999887790

Metals Analysis

Case Narrative

**Metals Fractional Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG GEL363409**

Sample ID	Client ID
363409002	B2YHJ0
363409003	B2YHH8
1203231842	Method Blank (MB)ICP
1203231843	Laboratory Control Sample (LCS)
1203231846	363416002(B2Y6X8L) Serial Dilution (SD)
1203231844	363416002(B2Y6X8S) Matrix Spike (MS)
1203231845	363416002(B2Y6X8SD) Matrix Spike Duplicate (MSD)

Sample Analysis

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

Method/Analysis Information

Analytical Batch:	1444835
Prep Batch :	1444833
Standard Operating Procedures:	GL-MA-E-013 REV# 23 and GL-MA-E-006 REV# 11
Analytical Method:	SW846 3005A/6010C
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 PE 7300 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.

Calibration Information

Instrument Calibration

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

CRDL/PQL Requirements

The PQL standard recoveries for SW846 6010C 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. 363409002 (B2YHJ0) and 363409003 (B2YHH8).

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 method blanks (MB) analyzed with this SDG met the acceptance criteria. Potassium concentrations was greater than the MDL in blank . In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data. 1203231842 (MB).

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement

The following sample was selected as the quality control (QC) sample for this SDG: 363416002 (B2Y6X8).

Matrix Spike (MS) Recovery Statement

The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable analytes met the acceptance criteria.

Matrix Spike Duplicate (MSD) Recovery Statement

The percent recovery (%R) obtained from the MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable analytes met the acceptance criteria.

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

The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations 25x the IDL/MDL for CVAA, 50X the IDL/MDL for ICP and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes 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 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

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 samples in this SDG did not require dilutions.

Preparation Information

The samples in this SDG were prepared exactly 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

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. Data exception reports were included behind the Case Narrative or in the Miscellaneous Data section of this data package. 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.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Nick Cole A. Elmore Date: 1.12.15

Sample Data Summary

January 12, 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: GEL363409 GEL Work Order: 363409

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.

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 Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Heather Shaffer.

Reviewed by

Y. Nik-Cole A. Elmore 1.12.15

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-012**

Report Date: January 12, 2015

Client Sample ID:	B2YHJ0	Project:	CPRC0W15012
Sample ID:	363409002	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	17-DEC-14 11:48		
Receive Date:	18-DEC-14		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<i>6010_METALS_ICP: COMMON "As Received"</i>												
Antimony 7440-36-0	U	0.166	+/-1.17	3.50	10.0	ug/L	1	JWJ	12/20/14	1715	1444835	1
Arsenic 7440-38-2	U	2.69	+/-1.75	5.00	30.0	ug/L	1					
Barium 7440-39-3		23.9	+/-4.80	1.00	5.00	ug/L	1					
Cadmium 7440-43-9	U	0.0021	+/-0.333	1.00	5.00	ug/L	1					
Calcium 7440-70-2		19900	+/-3980	50.0	200	ug/L	1					
Chromium 7440-47-3	B	4.15	+/-0.894	1.00	5.00	ug/L	1					
Cobalt 7440-48-4	U	0.101	+/-0.334	1.00	5.00	ug/L	1					
Copper 7440-50-8	U	-0.615	+/-1.01	3.00	10.0	ug/L	1					
Iron 7439-89-6	U	4.85	+/-10.0	30.0	100	ug/L	1					
Magnesium 7439-95-4		6760	+/-1350	110	300	ug/L	1					
Manganese 7439-96-5	U	0.596	+/-0.677	2.00	10.0	ug/L	1					
Nickel 7440-02-0	U	0.913	+/-0.532	1.50	5.00	ug/L	1					
Potassium 7440-09-7		2960	+/-592	50.0	150	ug/L	1					
Silver 7440-22-4	U	-0.127	+/-0.334	1.00	5.00	ug/L	1					
Sodium 7440-23-5		21700	+/-4340	100	300	ug/L	1					
Vanadium 7440-62-2		32.5	+/-6.51	1.00	5.00	ug/L	1					
Zinc 7440-66-6	B	3.55	+/-1.31	3.30	10.0	ug/L	1					

GEL LABORATORIES LLC

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Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-012**

Report Date: January 12, 2015

Client Sample ID:	B2YHH8	Project:	CPRC0W15012
Sample ID:	363409003	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	17-DEC-14 11:48		
Receive Date:	18-DEC-14		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<i>6010_METALS_ICP: COMMON "As Received"</i>												
Antimony 7440-36-0	U	1.94	+/-1.23	3.50	10.0	ug/L	1	JWJ	12/20/14	1718	1444835	1
Arsenic 7440-38-2	U	1.81	+/-1.71	5.00	30.0	ug/L	1					
Barium 7440-39-3		23.9	+/-4.79	1.00	5.00	ug/L	1					
Cadmium 7440-43-9	U	-0.202	+/-0.336	1.00	5.00	ug/L	1					
Calcium 7440-70-2		19800	+/-3960	50.0	200	ug/L	1					
Chromium 7440-47-3	B	4.19	+/-0.901	1.00	5.00	ug/L	1					
Cobalt 7440-48-4	U	-0.447	+/-0.345	1.00	5.00	ug/L	1					
Copper 7440-50-8	U	-0.906	+/-1.02	3.00	10.0	ug/L	1					
Iron 7439-89-6	U	27.1	+/-11.4	30.0	100	ug/L	1					
Magnesium 7439-95-4		6670	+/-1330	110	300	ug/L	1					
Manganese 7439-96-5	U	0.295	+/-0.669	2.00	10.0	ug/L	1					
Nickel 7440-02-0	U	1.06	+/-0.543	1.50	5.00	ug/L	1					
Potassium 7440-09-7		2930	+/-587	50.0	150	ug/L	1					
Silver 7440-22-4	U	-0.515	+/-0.349	1.00	5.00	ug/L	1					
Sodium 7440-23-5		21600	+/-4330	100	300	ug/L	1					
Vanadium 7440-62-2		32.3	+/-6.46	1.00	5.00	ug/L	1					
Zinc 7440-66-6	B	3.73	+/-1.33	3.30	10.0	ug/L	1					

Quality Control Summary

January 12, 2015
GEL LABORATORIES LLC

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

QC Summary

Report Date: January 12, 2015

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CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 363409

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1444835										
QC1203231843	LCS										
Antimony	500			471	ug/L		94.3	(80%-120%)	JWJ	12/20/14	17:12
Arsenic	500			476	ug/L		95.2	(80%-120%)			
Barium	500			486	ug/L		97.2	(80%-120%)			
Cadmium	500			477	ug/L		95.4	(80%-120%)			
Calcium	5000			4790	ug/L		95.8	(80%-120%)			
Chromium	500			481	ug/L		96.2	(80%-120%)			
Cobalt	500			493	ug/L		98.5	(80%-120%)			
Copper	500			488	ug/L		97.7	(80%-120%)			
Iron	5000			4730	ug/L		94.5	(80%-120%)			
Magnesium	5000			4770	ug/L		95.4	(80%-120%)			
Manganese	500			488	ug/L		97.6	(80%-120%)			
Nickel	500			487	ug/L		97.4	(80%-120%)			
Potassium	5000			4920	ug/L		98.5	(80%-120%)			
Silver	500			470	ug/L		94	(80%-120%)			
Sodium	5000			4780	ug/L		95.6	(80%-120%)			
Vanadium	500			500	ug/L		99.9	(80%-120%)			
Zinc	500			473	ug/L		94.6	(80%-120%)			
QC1203231842	MB										
Antimony			U	ND	ug/L					12/20/14	17:09
Arsenic			U	ND	ug/L						

January 12, 2015

GEL LABORATORIES LLC

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

QC Summary

Workorder: 363409

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1444835										
Barium			U	ND	ug/L						
Cadmium			U	ND	ug/L				JWJ	12/20/14	17:09
Calcium			U	ND	ug/L						
Chromium			U	ND	ug/L						
Cobalt			U	ND	ug/L						
Copper			U	ND	ug/L						
Iron			U	ND	ug/L						
Magnesium			U	ND	ug/L						
Manganese			U	ND	ug/L						
Nickel			U	ND	ug/L						
Potassium			B	64.9	ug/L						
Silver			U	ND	ug/L						
Sodium			U	ND	ug/L						
Vanadium			U	ND	ug/L						
Zinc			U	ND	ug/L						
QC1203231844 363416002 MS											
Antimony	500	U	ND	471	ug/L		93.9	(75%-125%)		12/20/14	17:24
Arsenic	500	U	ND	479	ug/L		95.8	(75%-125%)			
Barium	500		44.7	522	ug/L		95.4	(75%-125%)			
Cadmium	500	U	ND	465	ug/L		93	(75%-125%)			
Calcium	5000		47500	51500	ug/L		N/A	(75%-125%)			
Chromium	500		7.06	479	ug/L		94.4	(75%-125%)			
Cobalt	500	U	ND	477	ug/L		95.5	(75%-125%)			

January 12, 2015

GEL LABORATORIES LLC

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QC Summary

Workorder: 363409

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1444835										
Copper	500	U	ND	495	ug/L		99	(75%-125%)	JWJ	12/20/14	17:24
Iron	5000	U	ND	4740	ug/L		94.6	(75%-125%)			
Magnesium	5000		15700	20200	ug/L		89.9	(75%-125%)			
Manganese	500	U	ND	475	ug/L		95	(75%-125%)			
Nickel	500	U	ND	466	ug/L		93	(75%-125%)			
Potassium	5000		4640	9500	ug/L		97.3	(75%-125%)			
Silver	500	U	ND	474	ug/L		94.7	(75%-125%)			
Sodium	5000		16200	20900	ug/L		94.3	(75%-125%)			
Vanadium	500		25.5	520	ug/L		98.9	(75%-125%)			
Zinc	500	B	3.93	465	ug/L		92.2	(75%-125%)			
QC1203231845 363416002 MSD											
Antimony	500	U	ND	479	ug/L	1.48	95.3	(0%-20%)		12/20/14	17:27
Arsenic	500	U	ND	484	ug/L	1.09	96.9	(0%-20%)			
Barium	500		44.7	526	ug/L	0.863	96.3	(0%-20%)			
Cadmium	500	U	ND	469	ug/L	0.835	93.8	(0%-20%)			
Calcium	5000		47500	51900	ug/L	0.838	N/A	(0%-20%)			
Chromium	500		7.06	484	ug/L	0.945	95.3	(0%-20%)			
Cobalt	500	U	ND	480	ug/L	0.566	96	(0%-20%)			
Copper	500	U	ND	500	ug/L	1.04	100	(0%-20%)			
Iron	5000	U	ND	4790	ug/L	0.961	95.5	(0%-20%)			
Magnesium	5000		15700	20500	ug/L	1.15	94.6	(0%-20%)			
Manganese	500	U	ND	480	ug/L	0.984	96	(0%-20%)			

January 12, 2015
GEL LABORATORIES LLC

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QC Summary

Workorder: 363409

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1444835										
Nickel	500	U	ND	470	ug/L	0.906	93.8	(0%-20%)	JWJ	12/20/14	17:27
Potassium	5000		4640	9550	ug/L	0.535	98.3	(0%-20%)			
Silver	500	U	ND	477	ug/L	0.658	95.3	(0%-20%)			
Sodium	5000		16200	21100	ug/L	0.776	97.5	(0%-20%)			
Vanadium	500		25.5	526	ug/L	1.08	100	(0%-20%)			
Zinc	500	B	3.93	469	ug/L	0.859	93	(0%-20%)			
QC1203231846 363416002 SDILT											
Antimony		U	ND DU	ND	ug/L	N/A		(0%-10%)		12/20/14	17:30
Arsenic		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Barium			44.7 D	9.08	ug/L	1.57		(0%-10%)			
Cadmium		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Calcium			47500 D	9640	ug/L	1.54		(0%-10%)			
Chromium			7.06 D	1.30	ug/L	7.93		(0%-10%)			
Cobalt		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Copper		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Iron		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Magnesium			15700 D	3230	ug/L	2.63		(0%-10%)			
Manganese		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Nickel		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Potassium			4640 D	960	ug/L	3.53		(0%-10%)			
Silver		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Sodium			16200 D	3270	ug/L	.94		(0%-10%)			

January 12, 2015
GEL LABORATORIES LLC

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QC Summary

Workorder: 363409

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1444835										
Vanadium		25.5	D	5.14	ug/L	.669		(0%-10%)	JWJ	12/20/14	17:30
Zinc	B	3.93	D	17.4	ug/L	2110		(0%-10%)			

Notes:

The Qualifiers in this report are defined as follows:

- * Duplicate analysis not within control limits
- + Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- C Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.
- D Results are reported from a diluted aliquot of sample.
- E Reported value is estimated due to interferences. See comment in narrative.
- M Duplicate precision not met.
- N Spike Sample recovery is outside control limits.
- S Reported value determined by the Method of Standard Additions (MSA)
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- W Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
 ^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.
 For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

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

General Chem Analysis

Case Narrative

General Chemistry Narrative
CH2M Hill Plateau Remediation Company (CPRC)
SDG GEL363409

Method/Analysis Information

Product: Ion Chromatography
Analytical Batch: 1444814 **Method:** 9056_ANIONS_IC: COMMON

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9056A:

Sample ID	Client ID
363409001	B2YHH9
1203231793	Method Blank (MB)
1203231794	Laboratory Control Sample (LCS)
1203231795	363442002(B2YHN2) Sample Duplicate (DUP)
1203231796	363442002(B2YHN2) 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-086 REV# 23.

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 Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

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

The following sample was selected for QC analysis: 363442002 (B2YHN2).

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

The MS/PS recoveries for this sample set were 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 Dilutions

The following samples in this sample group were diluted due to high concentration: 1203231795 (B2YHN2DUP) and 1203231796 (B2YHN2PS).

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.

Manual Integrations

The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1203231795 (B2YHN2DUP), 1203231796 (B2YHN2PS) and 363409001 (B2YHH9).

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.

Method/Analysis Information

Product: Alkalinity
Analytical Batch: 1446148 **Method:** 2320_ALKALINITY: COMMON (Alkalinity only)

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SM 2320B:

Sample ID	Client ID
363409003	B2YHH8
1203234966	Method Blank (MB)
1203234968	Laboratory Control Sample (LCS)
1203234970	363297013(B2YKT8) Sample Duplicate (DUP)
1203234972	363297013(B2YKT8) Matrix Spike (MS)

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-033 REV# 11.

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 Titration and Ion analysis was performed on a manually operated buret.

Initial Standardization

The titrant was properly standardized

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

The following sample was selected for QC analysis: 363297013 (B2YKT8).

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 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

50mL of sample was used due to limited quantity. 1203234970 (B2YKT8DUP) and 1203234972 (B2YKT8MS).

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.

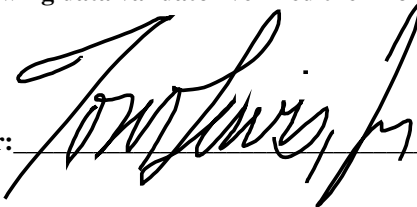
Certification Statement

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.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:  Date: 09Jan15

Sample Data Summary

January 12, 2015

GEL LABORATORIES LLC

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

**Certificate of Analysis Report
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL363409 GEL Work Order: 363409

The Qualifiers in this report are defined as follows:

B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).

D Results are reported from a diluted aliquot of sample.

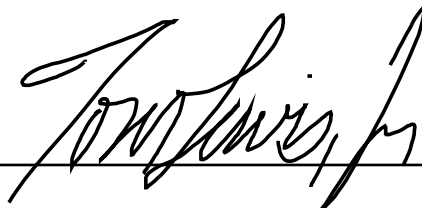
U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

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 Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Heather Shaffer.

Reviewed by



Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-012**

Report Date: January 9, 2015

Client Sample ID:	B2YHH9	Project:	CPRC0W15012
Sample ID:	363409001	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	17-DEC-14 11:48		
Receive Date:	18-DEC-14		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Ion Chromatography											
<i>9056_ANIONS_IC: COMMON "As Received"</i>											
Chloride 16887-00-6		5340	+/-180	67.0	200	ug/L	1	MXL2 12/18/14	1914	1444814	1
Fluoride 16984-48-8	B	481	+/-19.4	33.0	500	ug/L	1				
Nitrate-N 14797-55-8		3230	+/-108	33.0	250	ug/L	1				
Nitrite-N 14797-65-0	U	0.00	+/-12.7	38.0	250	ug/L	1				
Sulfate 14808-79-8		18100	+/-605	133	500	ug/L	1				

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9056A	

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-012**

Report Date: January 9, 2015

Client Sample ID:	B2YHH8	Project:	CPRC0W15012
Sample ID:	363409003	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	17-DEC-14 11:48		
Receive Date:	18-DEC-14		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Titration and Ion Analysis										
<i>2320_ALKALINITY: COMMON (Alkalinity only) "As Received"</i>										
Alkalinity, Total as CaCO3		92700	725	1000	ug/L		PX01 12/27/14	1623	1446148	1
ALKALINITY										

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SM 2320B	

Quality Control Summary

January 12, 2015
GEL LABORATORIES LLC

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

QC Summary

Report Date: January 9, 2015

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CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 363409

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography											
Batch	1444814										
QC1203231795	363442002	DUP									
Chloride		6630		6620	ug/L	0.213		(0%-20%)	MXL2	12/19/14	00:43
Fluoride	B	462	B	452	ug/L	2.36	^	(+/-500)			
Nitrate-N	D	5700	D	5680	ug/L	0.264		(0%-20%)		12/19/14	07:18
Nitrite-N	U	38.0	U	38.0	ug/L	N/A				12/19/14	00:43
Sulfate		16500		16300	ug/L	0.699		(0%-20%)			
QC1203231794	LCS										
Chloride	5000			4540	ug/L		90.8	(90%-110%)		12/18/14	18:41
Fluoride	2500			2320	ug/L		93	(90%-110%)			
Nitrate-N	2500			2300	ug/L		92.2	(90%-110%)			
Nitrite-N	2500			2280	ug/L		91.4	(90%-110%)			
Sulfate	10000			9340	ug/L		93.4	(90%-110%)			
QC1203231793	MB										
Chloride			U	67.0	ug/L					12/18/14	18:08
Fluoride			U	33.0	ug/L						
Nitrate-N			U	33.0	ug/L						
Nitrite-N			U	38.0	ug/L						
Sulfate			U	133	ug/L						
QC1203231796	363442002	PS									
Chloride	5.00	6.63		12.0	mg/L		108	(90%-110%)		12/19/14	01:16
Fluoride	2.50	B	0.462	2.91	mg/L		97.8	(90%-110%)			
Nitrate-N	2.50	D	0.570	D	3.00	mg/L	97.1	(90%-110%)		12/19/14	07:51

January 12, 2015
GEL LABORATORIES LLC

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

QC Summary

Workorder: 363409

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography											
Batch	1444814										
Nitrite-N	2.50	U	0.00	2.34	mg/L		93.4	(90%-110%)		12/19/14	01:16
Sulfate	10.0		16.5	27.2	mg/L		108	(90%-110%)	MXL2		
Titration and Ion Analysis											
Batch	1446148										
QC1203234970	363297013	DUP									
Alkalinity, Total as CaCO3		112000		114000	ug/L	1.87		(0%-20%)	PXO1	12/27/14	16:09
QC1203234968	LCS										
Alkalinity, Total as CaCO3	50000			51400	ug/L		103	(90%-110%)		12/27/14	15:53
QC1203234966	MB										
Alkalinity, Total as CaCO3			U	725	ug/L					12/27/14	15:53
QC1203234972	363297013	MS									
Alkalinity, Total as CaCO3	100000	112000		217000	ug/L		105	(80%-120%)		12/27/14	16:11

Notes:

The Qualifiers in this report are defined as follows:

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

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
 ^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
 * Indicates that a Quality Control parameter was not within specifications.
 For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

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