

January 13, 2015



PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407

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www.gel.com

January 08, 2015

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

Re: CHPRC SAF I15-002
Work Order: 363279
SDG: GEL363279

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on December 17, 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: 300071ES20
Chain of Custody: I15-002-109 and I15-002-110
Enclosures



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Case Narrative

January 13, 2015

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF I15-002
SDG: GEL363279

January 08, 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 17, 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
363279001	B2Y9M0
363279002	B2Y9L9
363279003	B2Y9M2

Case Narrative

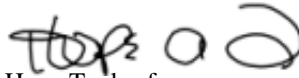
Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

January 13, 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, Metals and Radiochemistry.

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

January 13, 2015

CH2M Hill Plateau Remediation Company		C.O.C. # I15-002-110	
363279		Page 1 of 1	
Collector R.J. Crow/CHPRC	Contact/Requester Karen Waters-Husted	Telephone No. 509-376-4650	
SAF No. I15-002	Sampling Origin Hanford Site	Purchase Order/Charge Code 300071JDBA	
Project Title 100-KR-4 GW-OU Monitoring, November	Logbook No. HNF-N-506 74/10	Ice Chest No. GWS-424	
Shipped To (Lab) GEL Laboratories, LLC	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No. 772263644287	
Protocol CERCLA	Priority: 30 Days	Offsite Property No. 5280	
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 Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Sample No. B2Y9M0	Filter N	Date 12-16-14	Time 0828
No/Type Container 1x250-mL G/P	9056_ANIONS_IC: COMMON	Sample Analysis	Preservative Cool <=6C

Relinquished By R.J. Crow/CHPRC	Print <i>R. Crow</i>	Sign <i>R. Crow</i>	Date/Time DEC 16 2014 1100
Relinquished By L.D. Wall/CHPRC	Print <i>L.D. Wall</i>	Sign <i>L.D. Wall</i>	Date/Time DEC 16 2014 1400
Relinquished By Fed Ex	Print <i>Fed Ex</i>	Sign <i>Fed Ex</i>	Date/Time DEC 16 2014 1400
Received By L.D. Wall/CHPRC	Print <i>L.D. Wall</i>	Sign <i>L.D. Wall</i>	Date/Time DEC 16 2014 1100
Received By FEDEX	Print <i>FEDEX</i>	Sign <i>FEDEX</i>	Date/Time DEC 16 2014 1100
Received By <i>Shanta mack</i>	Print <i>Shanta mack</i>	Sign <i>Shanta mack</i>	Date/Time 12/17/14 9:25
Received By	Print	Sign	Date/Time

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

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

FINAL SAMPLE DISPOSITION

Date/Time

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#
115-002-109
Page 1 of 1

Collector **R.J. Crow/CHPRC** Contact/Requester **Karen Waters-Husted** Telephone No. **509-376-4650**

SAF No. **115-002** Sampling Origin **Hanford Site** Purchase Order/Charge Code **300071JDBA**

Project Title **100-KR-4 GW-OU Monitoring, November** Logbook No. **HNF-N-506 74/10** Ice Chest No. **605-424**

Shipped To (Lab) **GEL Laboratories, LLC** Method of Shipment **Commercial Carrier** Bill of Lading/Air Bill No. **1772263044287**

Protocol **CERCLA** Priority: **30 Days** SPECIAL INSTRUCTIONS **PRIORITY** Offsite Property No. **5280**

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
B2Y9L9	N	W	12-16-14	0828	1x500-mL G/P	6010_METALS_ICP: COMMON; 6010_METALS_ICP: GW 03	6 Months	HNO3 to pH <2
B2Y9L9	N	W			1x2-L P	9310_ALPHABETA_GPC: COMMON	6 Months	HNO3 to pH <2
B2Y9L9	N	W			1x500-mL G/P	C14_LSC: COMMON	6 Months	None
B2Y9L9	N	W			1x4-L G/P	GAMMA_GS: COMMON; GAMMA_GS: GW 01	6 Months	HNO3 to pH <2
B2Y9L9	N	W			3x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2
B2Y9L9	N	W			1x500-mL G/P	TC99_EIE_LSC: COMMON	6 Months	HNO3 to pH <2
B2Y9L9	N	W			1x500-mL P	TRITIUM_DIST_LSC: COMMON	6 Months	None
B2Y9M2	Y	W	12-16-14	0828	1x500-mL G/P	6010_METALS_ICP: COMMON; 6010_METALS_ICP: GW 03	6 Months	HNO3 to pH <2

January 13, 2015

Relinquished By R.J. Crow/CHPRC	Print R. Crow	Sign	Date/Time DEC 16 2014 11:00	Received By L.D. Wall/CHPRC	Print L.D. Wall	Sign L.D. Wall	Date/Time DEC 16 2014 1:00
Relinquished By L.D. Wall/CHPRC	Print L.D. Wall	Sign L.D. Wall	Date/Time DEC 16 2014 14:00	Received By FEDEX	Print FEDEX	Sign	Date/Time DEC 16 2014 9:25
Relinquished By Fed Ex	Print Fed Ex	Sign Fed Ex	Date/Time 12/17/14 9:25	Received By Shanta M. Clark	Print Shanta M. Clark	Sign Shanta M. Clark	Date/Time 12/17/14 9:25

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

Relinquished By _____ Date/Time _____

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

Disposed By _____ Date/Time _____

January 13, 2015

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: <u>CPRC</u>		SDG/AR/COC/Work Order: <u>363279</u>	
Received By: <u>H. Taylor</u>		Date Received: <u>12/1/14</u>	
Suspected Hazard Information	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0cpm</u>
Classified Radioactive II or III by RSO?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Package, COC and/or Samples marked as beryllium or asbestos containing?	<input type="checkbox"/>	<input checked="" 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____
Samples identified as Foreign Soil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)																														
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)																														
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: Ice bags Blue ice Dry ice None Other (describe) <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 type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):																														
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																															
4 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)																														
5 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's, containers affected and observed pH: If Preservation added, Lot#:																														
6 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:																														
7 Are Encore containers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)																														
8 Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:																														
9 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:																														
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:																														
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:																														
12 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																															
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																															
14 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 <table border="0"> <tr> <td>7722</td> <td>6364</td> <td>4287-2</td> <td>7722</td> <td>5366</td> <td>2399-2</td> </tr> <tr> <td>7722</td> <td>3333</td> <td>9130-3</td> <td>7722</td> <td>4167</td> <td>2547-2</td> </tr> <tr> <td>7722</td> <td>6364</td> <td>3459-2</td> <td>7722</td> <td>6364</td> <td>3913-3</td> </tr> <tr> <td>7722</td> <td>6364</td> <td>3718-2</td> <td></td> <td></td> <td></td> </tr> <tr> <td>7722</td> <td>6584</td> <td>3050-3</td> <td></td> <td></td> <td></td> </tr> </table>	7722	6364	4287-2	7722	5366	2399-2	7722	3333	9130-3	7722	4167	2547-2	7722	6364	3459-2	7722	6364	3913-3	7722	6364	3718-2				7722	6584	3050-3			
7722	6364	4287-2	7722	5366	2399-2																													
7722	3333	9130-3	7722	4167	2547-2																													
7722	6364	3459-2	7722	6364	3913-3																													
7722	6364	3718-2																																
7722	6584	3050-3																																

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials HT Date 12/1/14 Page 1 of 1

96186 SR-001

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 08 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

January 13, 2015
Metals Fractional Narrative
CH2M Hill Plateau Remediation Company (CPRC)
SDG GEL363279

Sample ID	Client ID
363279002	B2Y9L9
363279003	B2Y9M2
1203230778	Method Blank (MB)ICP
1203230779	Laboratory Control Sample (LCS)
1203230782	363279002(B2Y9L9L) Serial Dilution (SD)
1203230780	363279002(B2Y9L9S) Matrix Spike (MS)
1203230781	363279002(B2Y9L9SD) Matrix Spike Duplicate (MSD)

Sample Analysis

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

Method/Analysis Information

Analytical Batch:	1444308
Prep Batch :	1444307
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.

ICSA/ICSAB Statement

January 13, 2015

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 MB 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 sample was selected as the quality control (QC) sample for this SDG: 363279002 (B2Y9L9).

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: Pat Steell Date: 01/09/2015

Sample Data Summary

January 13, 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: GEL363279 GEL Work Order: 363279

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

Pat Steell 01/09/2015

GEL LABORATORIES LLC

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

January 13, 2015

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 I15-002**

Report Date: January 8, 2015

Client Sample ID:	B2Y9L9	Project:	CPRC0115002
Sample ID:	363279002	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	16-DEC-14 08:28		
Receive Date:	17-DEC-14		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<i>6010_METALS_ICP: COMMON +GW 03 "As Received"</i>											
Antimony 7440-36-0	U	0.697	+/-1.17	3.50	10.0	ug/L	1	JWJ	12/20/14	1959	1444308 1
Arsenic 7440-38-2	U	0.125	+/-1.67	5.00	30.0	ug/L	1				
Barium 7440-39-3		34.9	+/-7.00	1.00	5.00	ug/L	1				
Beryllium 7440-41-7	U	-0.143	+/-0.335	1.00	5.00	ug/L	1				
Cadmium 7440-43-9	U	-0.0096	+/-0.333	1.00	5.00	ug/L	1				
Calcium 7440-70-2		41000	+/-8190	50.0	200	ug/L	1				
Chromium 7440-47-3		21.3	+/-4.28	1.00	5.00	ug/L	1				
Cobalt 7440-48-4	U	-0.004	+/-0.333	1.00	5.00	ug/L	1				
Copper 7440-50-8		14.2	+/-3.01	3.00	10.0	ug/L	1				
Iron 7439-89-6	U	0.714	+/-10.0	30.0	100	ug/L	1				
Magnesium 7439-95-4		11100	+/-2230	110	300	ug/L	1				
Manganese 7439-96-5	U	0.0102	+/-0.667	2.00	10.0	ug/L	1				
Nickel 7440-02-0	U	-0.456	+/-0.508	1.50	5.00	ug/L	1				
Potassium 7440-09-7		4870	+/-974	50.0	150	ug/L	1				
Silver 7440-22-4	U	0.659	+/-0.358	1.00	5.00	ug/L	1				
Sodium 7440-23-5		10900	+/-2180	100	300	ug/L	1				
Strontium 7440-24-6		260	+/-51.9	1.00	5.00	ug/L	1				
Vanadium 7440-62-2		12.7	+/-2.56	1.00	5.00	ug/L	1				

January 13, 2015

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 I15-002**

Report Date: January 8, 2015

Client Sample ID: B2Y9L9 Project: CPRC0115002
 Sample ID: 363279002 Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP											
<i>6010_METALS_ICP: COMMON +GW 03 "As Received"</i>											
Zinc		15.7	+/-3.33	3.30	10.0	ug/L			1		
7440-66-6											

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	SW846 3005A for 6010C	JP1	12/17/14	1740	1444307

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 3005A/6010C	

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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 I15-002**

Report Date: January 8, 2015

Client Sample ID:	B2Y9M2	Project:	CPRC0115002
Sample ID:	363279003	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	16-DEC-14 08:28		
Receive Date:	17-DEC-14		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<i>6010_METALS_ICP: COMMON +GW 03 "As Received"</i>											
Antimony 7440-36-0	U	0.0947	+/-1.17	3.50	10.0	ug/L	1	JWJ	12/20/14	2009	1444308 1
Arsenic 7440-38-2	U	0.542	+/-1.67	5.00	30.0	ug/L	1				
Barium 7440-39-3		34.4	+/-6.90	1.00	5.00	ug/L	1				
Beryllium 7440-41-7	U	-0.0586	+/-0.334	1.00	5.00	ug/L	1				
Cadmium 7440-43-9	U	0.0644	+/-0.334	1.00	5.00	ug/L	1				
Calcium 7440-70-2		40800	+/-8150	50.0	200	ug/L	1				
Chromium 7440-47-3		22.1	+/-4.42	1.00	5.00	ug/L	1				
Cobalt 7440-48-4	U	0.022	+/-0.333	1.00	5.00	ug/L	1				
Copper 7440-50-8	B	9.76	+/-2.19	3.00	10.0	ug/L	1				
Iron 7439-89-6	U	1.44	+/-10.0	30.0	100	ug/L	1				
Magnesium 7439-95-4		11000	+/-2200	110	300	ug/L	1				
Manganese 7439-96-5	U	0.128	+/-0.667	2.00	10.0	ug/L	1				
Nickel 7440-02-0	U	-0.437	+/-0.508	1.50	5.00	ug/L	1				
Potassium 7440-09-7		4910	+/-982	50.0	150	ug/L	1				
Silver 7440-22-4	U	0.152	+/-0.335	1.00	5.00	ug/L	1				
Sodium 7440-23-5		10900	+/-2180	100	300	ug/L	1				
Strontium 7440-24-6		259	+/-51.8	1.00	5.00	ug/L	1				
Vanadium 7440-62-2		12.3	+/-2.48	1.00	5.00	ug/L	1				

January 13, 2015

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 I15-002**

Report Date: January 8, 2015

Client Sample ID: B2Y9M2 Project: CPRC0115002
 Sample ID: 363279003 Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP											
<i>6010_METALS_ICP: COMMON +GW 03 "As Received"</i>											
Zinc		17.3	+/-3.64	3.30	10.0	ug/L			1		
7440-66-6											

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	SW846 3005A for 6010C	JP1	12/17/14	1740	1444307

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 3005A/6010C	

Quality Control Summary

January 13, 2015
GEL LABORATORIES LLC

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QC Summary

Report Date: January 8, 2015

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CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 363279

Parmname	NOM	Sample Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP										
Batch	1444308									
QC1203230779	LCS									
Antimony	500		499	ug/L		99.8	(80%-120%)	JWJ	12/20/14	19:40
Arsenic	500		509	ug/L		102	(80%-120%)			
Barium	500		516	ug/L		103	(80%-120%)			
Beryllium	500		508	ug/L		102	(80%-120%)			
Cadmium	500		508	ug/L		102	(80%-120%)			
Calcium	5000		5100	ug/L		102	(80%-120%)			
Chromium	500		511	ug/L		102	(80%-120%)			
Cobalt	500		518	ug/L		104	(80%-120%)			
Copper	500		511	ug/L		102	(80%-120%)			
Iron	5000		5080	ug/L		102	(80%-120%)			
Magnesium	5000		5160	ug/L		103	(80%-120%)			
Manganese	500		513	ug/L		103	(80%-120%)			
Nickel	500		516	ug/L		103	(80%-120%)			
Potassium	5000		5070	ug/L		101	(80%-120%)			
Silver	500		501	ug/L		100	(80%-120%)			
Sodium	5000		5050	ug/L		101	(80%-120%)			
Strontium	500		524	ug/L		105	(80%-120%)			
Vanadium	500		532	ug/L		106	(80%-120%)			
Zinc	500		501	ug/L		100	(80%-120%)			

QC1203230778 MB

January 13, 2015

GEL LABORATORIES LLC

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QC Summary

Workorder: 363279

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Parname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1444308										
Antimony			U	ND	ug/L						12/20/14 19:37
Arsenic			U	ND	ug/L				JWJ		
Barium			U	ND	ug/L						
Beryllium			U	ND	ug/L						
Cadmium			U	ND	ug/L						
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			U	ND	ug/L						
Silver			U	ND	ug/L						
Sodium			U	ND	ug/L						
Strontium			U	ND	ug/L						
Vanadium			U	ND	ug/L						
Zinc			U	ND	ug/L						
QC1203230780 363279002 MS											
Antimony	500	U	ND	502	ug/L		100	(75%-125%)			12/20/14 20:02
Arsenic	500	U	ND	516	ug/L		103	(75%-125%)			
Barium	500		34.9	535	ug/L		100	(75%-125%)			

January 13, 2015

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QC Summary

Workorder: 363279

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1444308										
Beryllium	500	U	ND	502	ug/L		100	(75%-125%)	JWJ	12/20/14	20:02
Cadmium	500	U	ND	491	ug/L		98.3	(75%-125%)			
Calcium	5000		41000	46100	ug/L		N/A	(75%-125%)			
Chromium	500		21.3	515	ug/L		98.8	(75%-125%)			
Cobalt	500	U	ND	494	ug/L		98.8	(75%-125%)			
Copper	500		14.2	510	ug/L		99.2	(75%-125%)			
Iron	5000	U	ND	4970	ug/L		99.4	(75%-125%)			
Magnesium	5000		11100	16100	ug/L		99.8	(75%-125%)			
Manganese	500	U	ND	491	ug/L		98.2	(75%-125%)			
Nickel	500	U	ND	484	ug/L		96.8	(75%-125%)			
Potassium	5000		4870	10000	ug/L		103	(75%-125%)			
Silver	500	U	ND	489	ug/L		97.7	(75%-125%)			
Sodium	5000		10900	15800	ug/L		97.8	(75%-125%)			
Strontium	500		260	771	ug/L		102	(75%-125%)			
Vanadium	500		12.7	535	ug/L		104	(75%-125%)			
Zinc	500		15.7	498	ug/L		96.4	(75%-125%)			
QC1203230781 363279002 MSD											
Antimony	500	U	ND	503	ug/L	0.137	100	(0%-20%)		12/20/14	20:04
Arsenic	500	U	ND	514	ug/L	0.408	103	(0%-20%)			
Barium	500		34.9	537	ug/L	0.282	100	(0%-20%)			
Beryllium	500	U	ND	502	ug/L	0.0279	100	(0%-20%)			
Cadmium	500	U	ND	494	ug/L	0.499	98.8	(0%-20%)			

January 13, 2015

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QC Summary

Workorder: 363279

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1444308										
Calcium	5000	41000		46500	ug/L	0.672	N/A	(0%-20%)	JWJ	12/20/14	20:04
Chromium	500	21.3		523	ug/L	1.40	100	(0%-20%)			
Cobalt	500	U	ND	496	ug/L	0.452	99.3	(0%-20%)			
Copper	500	14.2		514	ug/L	0.658	99.9	(0%-20%)			
Iron	5000	U	ND	4980	ug/L	0.191	99.6	(0%-20%)			
Magnesium	5000	11100		16300	ug/L	1.12	103	(0%-20%)			
Manganese	500	U	ND	494	ug/L	0.644	98.8	(0%-20%)			
Nickel	500	U	ND	490	ug/L	1.19	98	(0%-20%)			
Potassium	5000	4870		10100	ug/L	0.577	104	(0%-20%)			
Silver	500	U	ND	492	ug/L	0.557	98.2	(0%-20%)			
Sodium	5000	10900		15800	ug/L	0.0949	98.1	(0%-20%)			
Strontium	500	260		769	ug/L	0.223	102	(0%-20%)			
Vanadium	500	12.7		541	ug/L	1.15	106	(0%-20%)			
Zinc	500	15.7		505	ug/L	1.32	97.8	(0%-20%)			
QC1203230782 363279002 SDILT											
Antimony		U	ND DU	ND	ug/L	N/A		(0%-10%)		12/20/14	20:06
Arsenic		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Barium			34.9 D	7.09	ug/L	1.38		(0%-10%)			
Beryllium		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Cadmium		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Calcium			41000 D	8290	ug/L	1.14		(0%-10%)			
Chromium			21.3 D	4.35	ug/L	2.06		(0%-10%)			

January 13, 2015
GEL LABORATORIES LLC

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

QC Summary

Workorder: 363279

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1444308										
Cobalt	U	ND	DU	ND	ug/L	N/A		(0%-10%)	JWJ	12/20/14	20:06
Copper		14.2	D	3.48	ug/L	22.3		(0%-10%)			
Iron	U	ND	DU	ND	ug/L	N/A		(0%-10%)			
Magnesium		11100	D	2250	ug/L	1.29		(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		4870	D	1010	ug/L	3.94		(0%-10%)			
Silver	U	ND	DU	ND	ug/L	N/A		(0%-10%)			
Sodium		10900	D	2250	ug/L	3.37		(0%-10%)			
Strontium		260	D	52.8	ug/L	1.65		(0%-10%)			
Vanadium		12.7	D	3.06	ug/L	20.6		(0%-10%)			
Zinc		15.7	D	5.10	ug/L	62.4		(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.

January 13, 2015

GEL LABORATORIES LLC

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

QC Summary

Workorder: 363279

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
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
CH2MHill Plateau Remediation Company (CPRC)
SDG GEL363279

Method/Analysis Information

Product: Ion Chromatography
Analytical Batch: 1444025 **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
363279001	B2Y9M0
1203230033	Method Blank (MB)
1203230034	Laboratory Control Sample (LCS)
1203230035	363232001(B2YK10) Sample Duplicate (DUP)
1203230697	363232023(B2YKW1) Sample Duplicate (DUP)
1203230036	363232001(B2YK10) Post Spike (PS)
1203230698	363232023(B2YKW1) 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 samples were selected for QC analysis: 363232001 (B2YK10) and 363232023 (B2YKW1).

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

The spike recovery falls outside of the established acceptance limits due to matrix interference: 1203230036 (B2YK10PS).

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

The following samples were received with insufficient time to prep and/or analyze within the remaining method-specified holding time. The samples were analyzed as soon as possible by the analyst. 1203230035 (B2YK10DUP) and 1203230036 (B2YK10PS).

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

The following DER was generated for this SDG: 1369190. 1203230035 (B2YK10DUP) and 1203230036 (B2YK10PS).

Manual Integrations

Manual integrations were not required for the samples in 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.

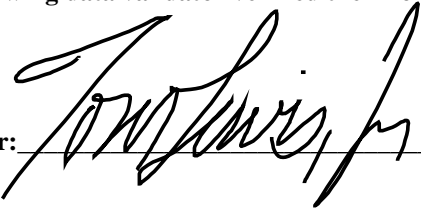
Certification Statement

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.

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 13, 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: GEL363279 GEL Work Order: 363279

The Qualifiers in this report are defined as follows:

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

D Results are reported from a diluted aliquot of sample.

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

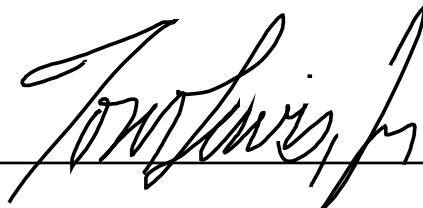
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

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 I15-002**

Report Date: January 8, 2015

Client Sample ID:	B2Y9M0	Project:	CPRC0115002
Sample ID:	363279001	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	16-DEC-14 08:28		
Receive Date:	17-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		16200	+/-539	67.0	200	ug/L	1	MXL2 12/17/14	2212	1444025	1
Fluoride 16984-48-8	B	242	+/-13.6	33.0	500	ug/L	1				
Nitrate-N 14797-55-8		3590	+/-120	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	D	41200	+/-1440	1330	4000	ug/L	10	MXL2 12/18/14	0308	1444025	2

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9056A	

Quality Control Summary

January 13, 2015
GEL LABORATORIES LLC

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

QC Summary

Report Date: January 8, 2015

Page 1 of 3

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

Contact: Mr. Scot Fitzgerald

Workorder: 363279

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography											
Batch	1444025										
QC1203230035	363232001	DUP									
Chloride		7640		7690	ug/L	0.557		(0%-20%)	MXL2	12/18/14	08:05
Fluoride	B	287	B	286	ug/L	0.454	^	(+/-500)			
Nitrate-N		2390	X	2400	ug/L	0.276		(0%-20%)			
Nitrite-N	U	38.0	UX	38.0	ug/L	N/A					
Sulfate	D	56300	D	56900	ug/L	1.00		(0%-20%)		12/18/14	09:10
QC1203230697	363232023	DUP									
Chloride		12400		12400	ug/L	0.0485		(0%-20%)		12/18/14	00:57
Fluoride	B	286	B	287	ug/L	0.0349	^	(+/-500)			
Nitrate-N		4080		4080	ug/L	0.147		(0%-20%)			
Nitrite-N	U	38.0	U	38.0	ug/L	N/A					
Sulfate	D	70600	D	70500	ug/L	0.163		(0%-20%)		12/18/14	04:47
QC1203230034	LCS										
Chloride		5000		4580	ug/L			91.5 (90%-110%)		12/18/14	10:49
Fluoride		2500		2340	ug/L			93.8 (90%-110%)			
Nitrate-N		2500		2310	ug/L			92.4 (90%-110%)			
Nitrite-N		2500		2310	ug/L			92.5 (90%-110%)			
Sulfate		10000		9380	ug/L			93.8 (90%-110%)			
QC1203230033	MB										
Chloride			U	67.0	ug/L					12/18/14	10:16
Fluoride			U	33.0	ug/L						
Nitrate-N			U	33.0	ug/L						

January 13, 2015
GEL LABORATORIES LLC

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

QC Summary

Workorder: 363279

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography											
Batch	1444025										
Nitrite-N			U	38.0	ug/L						
Sulfate			U	133	ug/L				MXL2	12/18/14	10:16
QC1203230036	363232001	PS									
Chloride	5.00	7.64		13.5	mg/L		118*	(90%-110%)		12/18/14	08:38
Fluoride	2.50	B	0.287	2.72	mg/L		97.3	(90%-110%)			
Nitrate-N	2.50		2.39 X	5.00	mg/L		105	(90%-110%)			
Nitrite-N	2.50	U	0.00 X	2.37	mg/L		94.9	(90%-110%)			
Sulfate	10.0	D	5.63 D	16.0	mg/L		103	(90%-110%)		12/18/14	09:43
QC1203230698	363232023	PS									
Chloride	5.00	12.4		18.3	mg/L		118*	(90%-110%)		12/18/14	01:30
Fluoride	2.50	B	0.286	2.72	mg/L		97.3	(90%-110%)			
Nitrate-N	2.50		4.08	6.80	mg/L		109	(90%-110%)			
Nitrite-N	2.50	U	0.00	2.36	mg/L		94.5	(90%-110%)			
Sulfate	10.0	D	7.06 D	17.6	mg/L		105	(90%-110%)		12/18/14	05:20

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

January 13, 2015

GEL LABORATORIES LLC

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

QC Summary

Workorder: 363279

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

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr. 30-DEC-14	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: IC	Test / Method: SW846 9056A	Matrix Type: Liquid	Client Code: CPRC
Batch ID: 1444025	Sample Numbers: See Below		

Potentially affected work order(s)(SDG): 363232(GEL363232),363235(GEL363235),363279(GEL363279)

Application Issues:

Failed Recovery for MS/PS
Sample Analyzed out of Holding

Specification and Requirements Exception Description:	DER Disposition:
<p>1. Failed Recovery for MS/PS:</p> <p>QC 1203230036PS</p> <p>2. Sample Analyzed out of Holding:</p> <p>363232 002,005,006</p> <p>QC 1203230035DUP, 1203230036PS</p>	<p>1. The MS/PS mixture contains seven anions of interest. Of those, all requested anions except chloride met normal acceptance criteria for recovery (90 - 110%). This failure is attributed to the matrix of the sample because the successful recovery of the other compounds indicate that the laboratory process was in control. This variance is judged to have no negative impact on the data. The deviation is noted in the Case Narrative and DER, and the data has been reported.</p> <p>2. The following samples were received with insufficient time to prep and/or analyze within the remaining method-specified holding time. The samples were analyzed as soon as possible by the analyst.</p>

Originator's Name:

Marcy Lamb 30-DEC-14

Data Validator/Group Leader:

Thomas Lewis 08-JAN-15

Radiological Analysis

January 13, 2015
Radiochemistry Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG GEL363279
Work Order 363279

Method/Analysis Information

Product: GAMMA_GS:COMMON + GW 01
Analytical Method: EPA 901.1
Analytical Batch Number: 1443873

Sample ID	Client ID
363279002	B2Y9L9
1203229584	MB for batch 1443873
1203229586	Laboratory Control Sample (LCS)
1203229585	363012002(B2YTX9) Sample Duplicate (DUP)

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-RAD-A-013 REV# 25.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

The blank volume is representative of the sample volume in this batch.

Designated QC

The following sample was used for QC: 363012002 (B2YTX9).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time

All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Recounts

Sample 1203229586 (LCS) recounted due to high recovery for Am-241. The recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation

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

Sample-Specific MDA/MDC

The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: 9310_ALPHA_BETA_GPC: COMMON

Analytical Method: EPA 900.0/SW846 9310

Analytical Batch Number: 1445780

Sample ID	Client ID
363279002	B2Y9L9
1203234093	MB for batch 1445780
1203234097	Laboratory Control Sample (LCS)
1203234094	363297020(B2YLB6) Sample Duplicate (DUP)
1203234095	363297020(B2YLB6) Matrix Spike (MS)
1203234096	363297020(B2YLB6) Matrix Spike Duplicate (MSD)

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-RAD-A-001 REV# 18.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

The blank volume is representative of the sample volume in this batch.

Designated QC

The following sample was used for QC: 363297020 (B2YLB6).

QC Information

All of the QC samples meet the required acceptance limits with the following exceptions: The sample and the duplicate, 1203234094 (B2YLB6DUP), did not meet the alpha relative percent difference requirement; however, they do meet the relative error ratio requirement with a value of 1.49.

Technical Information:

Holding Time

All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries

All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information

High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating.

Recounts

Sample 1203234097 (LCS) was recounted due to low recovery. The recount is reported. Sample 1203234095 (B2YLB6MS) was recounted due to high recovery. The recount is reported. Sample 1203234094 (B2YLB6DUP) was recounted to verify sample result. The second count is reported.

Miscellaneous Information:

Data Exception (DER) Documentation

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

Sample-Specific MDA/MDC

The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments

The matrix spike and matrix spike duplicate, 1203234095 (B2YLB6MS) and 1203234096 (B2YLB6MSD), aliquots were reduced to conserve sample volume.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: SRISO_SEP_PRECIP_GPC: COMMON

Analytical Method: EPA 905.0 Modified

Analytical Batch Number: 1446313

Sample ID	Client ID
363279002	B2Y9L9
1203235387	MB for batch 1446313
1203235389	Laboratory Control Sample (LCS)
1203235388	363297008(B2YKR0) Sample Duplicate (DUP)

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-RAD-A-004 REV# 17.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

The blank volume is representative of the sample volume in this batch.

Designated QC

The following sample was used for QC: 363297008 (B2YKR0).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time

All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries

All chemical recoveries meet the required acceptance limits for this sample set.

Recounts

None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation

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

Sample-Specific MDA/MDC

The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: TC99_EIE_LSC: COMMON
Analytical Method: DOE EML HASL-300, Tc-02-RC Modified
Analytical Batch Number: 1446106

Sample ID	Client ID
363279002	B2Y9L9
1203234835	MB for batch 1446106
1203234837	Laboratory Control Sample (LCS)
1203234836	363232017(B2YKN0) Sample Duplicate (DUP)

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

SOP Reference

January 13, 2015

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-RAD-A-059 REV# 3.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

The blank volume is representative of the sample volume in this batch.

Designated QC

The following sample was used for QC: 363232017 (B2YKN0).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time

All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Recounts

None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation

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

Sample-Specific MDA/MDC

The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: C14_LSC: COMMON
Analytical Method: EPA EERF C-01 Modified
Analytical Batch Number: 1446159

Sample ID	Client ID
363279002	B2Y9L9
1203235016	MB for batch 1446159
1203235019	Laboratory Control Sample (LCS)
1203235017	363279002(B2Y9L9) Sample Duplicate (DUP)
1203235018	363279002(B2Y9L9) 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-RAD-A-003 REV# 15.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

The blank volume is representative of the sample volume in this batch.

Designated QC

The following sample was used for QC: 363279002 (B2Y9L9).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time

All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Recounts

None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation

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

Sample-Specific MDA/MDC

The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments

The matrix spike, 1203235018 (B2Y9L9MS), aliquot was reduced to conserve sample volume.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: TRITIUM_DIST_LSC: COMMON

Analytical Method: EPA 906.0 Modified

Analytical Batch Number: 1446479

Sample ID	Client ID
363279002	B2Y9L9
1203235829	MB for batch 1446479
1203235832	Laboratory Control Sample (LCS)
1203235830	363297008(B2YKR0) Sample Duplicate (DUP)
1203235831	363297008(B2YKR0) 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-RAD-A-002 REV# 21.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

The blank volume is representative of the sample volume in this batch.

Designated QC

The following sample was used for QC: 363297008 (B2YKR0).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time

All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Recounts

Sample 363279002 (B2Y9L9) was recounted to verify sample results. Recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation

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

Sample-Specific MDA/MDC

The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

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.

January 13, 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: GEL363279 GEL Work Order: 363279

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: Kate Gellatly

Date: 12 JAN 2015

Title: Analyst I

Sample Data Summary

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 I15-002

Report Date: January 12, 2015

Client Sample ID:	B2Y9L9	Project:	CPRC0115002
Sample ID:	363279002	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	16-DEC-14		
Receive Date:	17-DEC-14		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
<i>GAMMA_GS:COMMON + GW 01 "As Received"</i>													
Antimony-125 14234-35-6	U	8.03	+/-8.78	17.3	+/-9.52		pCi/L		MJH1	12/31/14	1217	1443873	1
Cesium-134 13967-70-9	U	-1.32	+/-2.80	4.84	+/-2.86		pCi/L						
Cesium-137 10045-97-3	U	-0.108	+/-3.27	5.97	+/-3.27	10.0	pCi/L						
Cobalt-60 10198-40-0	U	0.611	+/-2.72	5.67	+/-2.74		pCi/L						
Europium-152 14683-23-9	U	-2.04	+/-9.78	15.0	+/-9.82		pCi/L						
Europium-154 15585-10-1	U	4.40	+/-9.62	19.8	+/-9.83		pCi/L						
Europium-155 14391-16-3	U	-8.37	+/-16.1	24.2	+/-16.6		pCi/L						
Potassium-40 13966-00-2	U	7.32	+/-34.9	70.5	+/-35.1		pCi/L						
Rad Gas Flow Proportional Counting													
<i>9310_ALPHABETA_GPC: COMMON "As Received"</i>													
Alpha 12587-46-1	U	-0.243	+/-1.50	2.90	+/-1.50	3.00	pCi/L		GXR1	12/30/14	0949	1445780	2
Beta 12587-47-2		10.5	+/-2.20	2.91	+/-2.79	4.00	pCi/L						
<i>SRISO_SEP_PRECIP_GPC: COMMON "As Received"</i>													
Total Strontium SR-RAD		4.05	+/-1.03	1.22	+/-1.39	2.00	pCi/L		KSD1	01/06/15	0735	1446313	3
Rad Liquid Scintillation Analysis													
<i>C14_LSC: COMMON "As Received"</i>													
Carbon-14 14762-75-5		38.4	+/-2.93	3.92	+/-7.71	5.00	pCi/L		BYS1	01/01/15	1830	1446159	4
<i>TC99_EIE_LSC: COMMON "As Received"</i>													
Technetium-99 14133-76-7	U	-1.82	+/-5.15	8.97	+/-5.15	15.0	pCi/L		MYM1	01/05/15	1521	1446106	5
<i>TRITIUM_DIST_LSC: COMMON "As Received"</i>													
Tritium 10028-17-8		14900	+/-1100	267	+/-3080	100	pCi/L		BYS1	01/10/15	1605	1446479	6

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 I15-002

Report Date: January 12, 2015

Client Sample ID: B2Y9L9 Project: CPRC0115002
 Sample ID: 363279002 Client ID: CPRC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
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The following Analytical Methods were performed

Method	Description
1	EPA 901.1
2	EPA 900.0/SW846 9310
3	EPA 905.0 Modified
4	EPA EERF C-01 Modified
5	DOE EML HASL-300, Tc-02-RC Modified
6	EPA 906.0 Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Strontium Carrier	SRISO_SEP_PRECIP_GPC: COM	95.1	(25%-125%)
Technetium-99m Tracer	TC99_EIE_LSC: COMMON "As I	97.1	(15%-125%)

Notes:
 TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96 sigma).
 The Qualifiers in this report are defined as follows :

- * Duplicate analysis not within control limits
 - + Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
 - B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
 - B The associated QC sample blank has a result >= 2X the MDA and, after corrections, result is >= MDA for this sample
 - 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
- The above sample is reported on an "as received" basis.

Quality Control Data

GEL LABORATORIES LLC

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QC Summary

Report Date: January 12, 2015
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Client : CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352

Contact: Mr. Scot Fitzgerald

Workorder: 363279

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gamma Spec									
Batch	1443873								
QC1203229584	MB								
Antimony-125			U	1.96	pCi/L			MJH1	12/31/1412:44
				Uncert: +/-8.24					
				TPU: +/-8.29					
Cesium-134			U	-2.0	pCi/L				
				Uncert: +/-3.89					
				TPU: +/-3.99					
Cesium-137			U	-0.403	pCi/L				
				Uncert: +/-3.51					
				TPU: +/-3.52					
Cobalt-60			U	-0.276	pCi/L				
				Uncert: +/-3.33					
				TPU: +/-3.33					
Europium-152			U	12.5	pCi/L				
				Uncert: +/-9.12					
				TPU: +/-10.8					
Europium-154			U	-4.34	pCi/L				
				Uncert: +/-7.85					
				TPU: +/-8.09					
Europium-155			U	8.61	pCi/L				
				Uncert: +/-21.1					
				TPU: +/-21.1					
Potassium-40			U	-15.5	pCi/L				
				Uncert: +/-37.1					
				TPU: +/-37.8					
QC1203229585	363012002	DUP							
Antimony-125		U	-1.1	U	-1.71	pCi/L			01/02/1512:10
					Uncert: +/-9.11		RPD: 0	N/A	
					TPU: +/-9.13		RER: 0.0947	(0-2)	
Cesium-134		U	0.432	U	0.245	pCi/L			
					Uncert: +/-3.97		RPD: 0	N/A	
					TPU: +/-3.98		RER: 0.0701	(0-2)	
Cesium-137		U	5.01	U	0.535	pCi/L			
					Uncert: +/-6.59		RPD: 0	N/A	
					TPU: +/-6.60		RER: 1.18	(0-2)	
Cobalt-60		U	1.26	U	-2.47	pCi/L			
					Uncert: +/-4.08		RPD: 0	N/A	
					TPU: +/-4.12		RER: 1.28	(0-2)	
Europium-152		U	1.82	U	0.456	pCi/L			
					Uncert: +/-10.2		RPD: 0	N/A	
					TPU: +/-10.3		RER: 0.194	(0-2)	
Europium-154		U	-2.14	U	-0.927	pCi/L			
					Uncert: +/-10.5		RPD: 0	N/A	
					TPU: +/-10.5		RER: 0.172	(0-2)	
Europium-155		U	4.78	U	3.59	pCi/L			

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QC Summary

Workorder: 363279

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Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gamma Spec									
Batch	1443873								
		Uncert:	+/-10.4	+/-12.1					
		TPU:	+/-10.6	+/-12.2		RPD: 0	N/A		
						RER: 0.144	(0-2)		
Potassium-40		U	39.4	U	38.0	pCi/L			
		Uncert:	+/-58.8	+/-44.8		RPD: 0	N/A		
		TPU:	+/-58.9	+/-48.1		RER: 0.0374	(0-2)		
QC1203229586	LCS								
Americium-241	34500				35300	pCi/L	REC: 102 (80%-120%)		01/02/1515:28
		Uncert:			+/-2080				
		TPU:			+/-3430				
Antimony-125				U	330	pCi/L			
		Uncert:			+/-265				
		TPU:			+/-305				
Cesium-134				U	36.8	pCi/L			
		Uncert:			+/-105				
		TPU:			+/-106				
Cesium-137	13900				14600	pCi/L	REC: 105 (80%-120%)		
		Uncert:			+/-361				
		TPU:			+/-1280				
Cobalt-60	16400				16600	pCi/L	REC: 101 (80%-120%)		
		Uncert:			+/-411				
		TPU:			+/-1390				
Europium-152				U	96.4	pCi/L			
		Uncert:			+/-270				
		TPU:			+/-274				
Europium-154				U	-102	pCi/L			
		Uncert:			+/-137				
		TPU:			+/-145				
Europium-155				U	-413	pCi/L			
		Uncert:			+/-375				
		TPU:			+/-420				
Potassium-40				U	1.62	pCi/L			
		Uncert:			+/-274				
		TPU:			+/-274				
Rad Gas Flow									
Batch	1445780								
QC1203234093	MB								
Alpha				U	0.510	pCi/L		GXR1	12/30/1410:43
		Uncert:			+/-1.29				
		TPU:			+/-1.29				
Beta				U	1.71	pCi/L			
		Uncert:			+/-2.09				
		TPU:			+/-2.11				
QC1203234094	363297020	DUP							
Alpha			17.9		24.3	pCi/L			12/31/1407:33
		Uncert:	+/-3.79		+/-4.84		RPD: 30* (0% - 20%)		
		TPU:	+/-5.42		+/-6.37		RER: 1.49 (0-2)		
Beta			130		147	pCi/L			
		Uncert:	+/-4.89		+/-6.15		RPD: 12 (0% - 20%)		
		TPU:	+/-21.6		+/-25.0		RER: 1.02 (0-2)		

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QC Summary

Workorder: 363279

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Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gas Flow									
Batch	1445780								
QC1203234095	363297020	MS							
Alpha	243	17.9		308	pCi/L	REC: 119	(75%-125%)		12/31/1407:33
	Uncert:	+/-3.79		+/-31.0					
	TPU:	+/-5.42		+/-59.8					
Beta	952	130		1280	pCi/L	REC: 121	(75%-125%)		
	Uncert:	+/-4.89		+/-40.9					
	TPU:	+/-21.6		+/-213					
QC1203234096	363297020	MSD							
Alpha	243	17.9		316	pCi/L	REC: 123	(75%-125%)		12/30/1410:41
	Uncert:	+/-3.79		+/-32.3		RPD: 3	(0%-20%)		
	TPU:	+/-5.42		+/-67.1		RER: 0.188	(0-2)		
Beta	952	130		1110	pCi/L	REC: 103	(75%-125%)		
	Uncert:	+/-4.89		+/-39.1		RPD: 14	(0%-20%)		
	TPU:	+/-21.6		+/-185		RER: 1.20	(0-2)		
QC1203234097	LCS								
Alpha	81.1			87.7	pCi/L	REC: 108	(80%-120%)		12/31/1407:33
	Uncert:			+/-8.27					
	TPU:			+/-16.7					
Beta	317			361	pCi/L	REC: 114	(80%-120%)		
	Uncert:			+/-12.4					
	TPU:			+/-60.1					
Batch	1446313								
QC1203235387	MB								
Total Strontium			U	0.152	pCi/L			KSD1	01/06/1507:38
	Uncert:			+/-0.584					
	TPU:			+/-0.585					
QC1203235388	363297008	DUP							
Total Strontium	U	0.068	U	0.662	pCi/L				01/06/1508:43
	Uncert:	+/-0.721		+/-0.660		RPD: 0	N/A		
	TPU:	+/-0.721		+/-0.677		RER: 1.18	(0-2)		
QC1203235389	LCS								
Total Strontium	79.3			82.5	pCi/L	REC: 104	(80%-120%)		01/06/1508:43
	Uncert:			+/-3.95					
	TPU:			+/-19.4					
Rad Liquid Scintillation									
Batch	1446106								
QC1203234835	MB								
Technetium-99			U	-0.296	pCi/L			MYM1	01/05/1518:30
	Uncert:			+/-5.26					
	TPU:			+/-5.26					
QC1203234836	363232017	DUP							
Technetium-99	U	-4.21	U	-3.6	pCi/L				01/05/1519:07
	Uncert:	+/-7.78		+/-7.72		RPD: 0	N/A		
	TPU:	+/-7.78		+/-7.72		RER: 0.109	(0-2)		
QC1203234837	LCS								
Technetium-99	290			306	pCi/L	REC: 106	(80%-120%)		01/05/1519:47
	Uncert:			+/-11.2					
	TPU:			+/-35.8					
Batch	1446159								
QC1203235016	MB								

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QC Summary

Workorder: 363279

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Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Liquid Scintillation									
Batch	1446159								
Carbon-14			U	-1.83	pCi/L			BYS1	01/01/1520:12
				Uncert: +/-2.28					
				TPU: +/-2.28					
QC1203235017	363279002	DUP							
Carbon-14		38.4		36.5	pCi/L				01/01/1521:54
				Uncert: +/-2.93		RPD: 5 (0% - 20%)			
				TPU: +/-7.71		RER: 0.359 (0-2)			
QC1203235018	363279002	MS							
Carbon-14	1520	38.4		1650	pCi/L	REC: 106 (75%-125%)			01/01/1523:36
				Uncert: +/-2.93					
				TPU: +/-7.71					
QC1203235019	LCS								
Carbon-14	253			266	pCi/L	REC: 105 (80%-120%)			01/02/1500:51
				Uncert: +/-6.04					
				TPU: +/-49.7					
Batch	1446479								
QC1203235829	MB								
Tritium			U	-53.5	pCi/L			BYS1	01/08/1507:23
				Uncert: +/-56.7					
				TPU: +/-56.7					
QC1203235830	363297008	DUP							
Tritium		832		711	pCi/L				01/08/1511:31
				Uncert: +/-108		RPD: 16 (0% - 20%)			
				TPU: +/-194		RER: 0.912 (0-2)			
QC1203235831	363297008	MS							
Tritium	1880	832		2400	pCi/L	REC: 83 (75%-125%)			01/08/1513:33
				Uncert: +/-108					
				TPU: +/-194					
QC1203235832	LCS								
Tritium	1880			1520	pCi/L	REC: 81 (80%-120%)			01/08/1513:51
				Uncert: +/-366					
				TPU: +/-469					

Notes:

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

The Qualifiers in this report are defined as follows:

- * Duplicate analysis not within control limits
- + Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
- < Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide
- > Result greater than quantifiable range or greater than upper limit of the analysis range
- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- B The associated QC sample blank has a result >= 2X the MDA and, after corrections, result is >= MDA for this sample
- 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.

QC Summary

Workorder: 363279

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Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date	Time
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.

** Indicates analyte is a surrogate compound.

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

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

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