

February 27, 2015



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www.gel.com

February 25, 2015

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

Re: CHPRC SAF I15-009
Work Order: 366158
SDG: GEL366158

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on January 30, 2015. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4505.

Sincerely,

Heather Shaffer
Project Manager

Purchase Order: 300071 - 7H
Chain of Custody: I15-009-008, I15-009-009 and I15-009-021
Enclosures



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Case Narrative

February 27, 2015

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF I15-009
SDG: GEL366158

February 25, 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 January 30, 2015, for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Items of Note All efforts were made by the lab to meet any short hold times. Samples that were analyzed outside of the initial hold time but still within 2X hold time will be noted in the lab case narrative and DER

Sample Identification

The laboratory received the following samples:

Laboratory Identification	Sample Description
366158001	B2YXJ9
366158002	B2YXK0
366158003	B2YXL7

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.

February 27, 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: GC/MS Volatile, 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.



Heather Shaffer
Project Manager

Chain of Custody and Supporting Documentation

February 27, 2015

CH2M Hill Plateau Remediation Company		C.O.C. # I15-009-008	
366158		Page 1 of 1	
Collector	S.W. King/CHPRC	Telephone No.	509-376-4650
SAF No.	I15-009	Purchase Order/Charge Code	300071
Project Title	200ZPI, JANUARY 2015	Ice Chest No.	6WS-291
Shipped To (Lab)	GEL Laboratories, LLC	Bill of Lading/Air Bill No.	772760904253
Protocol	CERCLA	Offsite Property No.	5374
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		Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Sample No.	B2YXJ9	Filter	N
		* Date	JAN 29 2015 0700
No/Type Container	4x40-mL aGs*	Sample Analysis	8260_VOA_GCMS_IX: COMMON
Time		Holding Time	14 Days
		Preservative	HCl or H2SO4 to pH <2/Cool <=6C

Relinquished By	S.W. King/CHPRC	Print	<i>[Signature]</i>	Sign		Date/Time	JAN 29 2015 1220
Received By	L.D. Wall CHPRC	Print	<i>[Signature]</i>	Sign		Date/Time	JAN 29 2015 1220
Relinquished By	L.D. Wall CHPRC	Print	<i>[Signature]</i>	Sign		Date/Time	JAN 29 2015 1400
Received By	M. Kingston M. Kelly	Print	<i>[Signature]</i>	Sign		Date/Time	1-30-15 0835

Relinquished By		Date/Time	
Received By		Date/Time	
Relinquished By		Date/Time	
Received By		Date/Time	

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 O 12/9/2014			

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		C.O.C. # I15-009-009	
Collector: S.W. King/CHPRC		Contact/Requester: Karen Waters-Husted		Telephone No.: 509-376-4650	
SAF No.: I15-009		Sampling Origin: Hanford Site		Purchase Order/Charge Code: 300071	
Project Title: 200ZP1, JANUARY 2015		Logbook No.: HNF-N-50671158		Ice Chest No.: 6WS-291	
Shipped To (Lab): GEL Laboratories, LLC		Method of Shipment: Commercial Carrier		Bill of Lading/Air Bill No.: 772760904253	
Protocol: CERCLA		Priority: 30 Days		Offsite Property No.: 5374	
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.	Filter	Date	Time	No./Type Container	Sample Analysis
B2YXK0	N	W JAN 29 2015	0950	4x40-mL aGs*	8260_VOA_GCMS_IX: COMMON
				14 Days	HCl or H2SO4 to pH <2/Cool <=6C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
S.W. King/CHPRC	<i>[Signature]</i>		JAN 29 2015 1220	L.D. Walli CHPRC	<i>[Signature]</i>		JAN 29 2015 1220	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By			JAN 29 2015 1400		FEDEX			DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
Relinquished By								
Relinquished By								
FINAL SAMPLE DISPOSITION		Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By		Date/Time		
PRINTED O 12/9/2014								A-6004-842 (REV 2)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **I15-009-021**
Page 1 of 1

Collector S.W. King/CHPRC
SAF No. I15-009
Project Title 200ZP1, JANUARY 2015
Shipped To (Lab) TestAmerica-St-Louis-662
Protocol CERCLA KS 1/27/15
Contact/Requester Karen Waters-Husted
Sampling Origin Hanford Site
Logbook No. HNF-N-50671158
Method of Shipment Commercial Carrier
Priority: 30 Days **PRIORITY**
Telephone No. 509-376-4650
Purchase Order/Charge Code 300071
Ice Chest No. 605-291
Bill of Lading/Air Bill No. 712760904253
Offsite Property No. 5374

SPECIAL INSTRUCTIONS 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
B2YXL7	N	JAN 29 2015	1137	1x500-mL G/P	160.1_TDS: COMMON	7 Days	Cool <=6C
B2YXL7	N			1x500-mL G/P	310.1_ALKALINITY: GW 01	14 Days	Cool <=6C
B2YXL7	N			1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2
B2YXL7	N			4x40-mL aGs*	8260_VOA_GCMS_IX: COMMON	14 Days	HCl or H2SO4 to pH <2/Cool <=6C
B2YXL7	N			3x500-mL G/P	9034_SULFIDE: COMMON	7 Days	ZnAc+NaOH to pH > 9/Cool <=6C
B2YXL7	N	JAN 29 2015	1137	1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C

Relinquished By S.W. King/CHPRC	Print <i>[Signature]</i>	Sign S.W. King	Date/Time JAN 29 2015 1220	Received By L.D. Wall CHPRC	Print <i>[Signature]</i>	Sign L.D. Wall	Date/Time JAN 29 2015 1220	Matrix *
Relinquished By L.D. Wall CHPRC	Print <i>[Signature]</i>	Sign L.D. Wall	Date/Time JAN 29 2015 1400	Received By CHPRC	Print FEDEX	Sign FEDEX	Date/Time JAN 29 2015 0855	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 8 of 8	Print <i>[Signature]</i>	Sign Pen Ex	Date/Time	Received By <i>[Signature]</i>	Print <i>[Signature]</i>	Sign Kustor ML/Kob	Date/Time	
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)						Disposed By	Date/Time

February 27, 2015



Client: <u>OPRC</u>		SDG/AR/COC/Work Order: <u>366158</u>	
Received By: <u>mk</u>		Date Received: <u>1-30-15</u>	
Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?			Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>Open</u>
Classified Radioactive II or III by RSO?			If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?			
Package, COC, and/or Samples marked as beryllium or asbestos containing?			If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?			Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?			

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>			Preservation Method: <u>Ice bags</u> Blue ice Dry ice None Other (describe) <small>*all temperatures are recorded in Celsius</small>
2a	Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>			Temperature Device Serial #: <u>130531776</u> Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4	Sample containers intact and sealed?	<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"/>			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"/>			Sample ID's and containers affected:
7	Are Encore containers present?			<input checked="" type="checkbox"/>	If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	<input checked="" type="checkbox"/>			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
11	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>			
13	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			
14	Carrier and tracking number.	<input checked="" type="checkbox"/>			Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other

Comments (Use Continuation Form if needed):

Data Review Qualifier Definitions

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

Code	Status	Qualifier Definition	CofA	Department	Fraction	Additional Comments
U	Programmed	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.	Y			Includes MDA, TPU, count uncert.
J	Programmed	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate). Value is estimated	Y	Organics		Organics only
P	Programmed	Aroclor target analyte with greater than 25% difference between column analyses.	Y	Organics		PCB only
C	Manual	Analyte has been confirmed by GC/MS analysis	Y	Organics	Pesticide	IF GC/MS confirmation was attempted but unsuccessful do not qualify with C
B	Programmed	The analyte was detected in both the associated QC blank and in the sample.	Y	Organics		
E	Manual	Concentration exceeds the calibration range of the instrument	Y	Organics		Qualifier Uploaded
A	Manual	The TIC is a suspected aldol-condensation product	Y	Organics	Semi-Volatile	Uploaded with TIC
X	Programmed	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			Replaces H Hold Date In RAD replaces UI. Same usage as standard X as well.
N	Programmed	Spike Sample recovery is outside control limits.	Y			
*	Programmed	Duplicate analysis not within control limits	Y	Inorganics		
>	Programmed	Result greater than quantifiable range or greater than upper limit of the analysis range	Y	General Chemistry		
Z	Manual	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			
B	Programmed	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	Y	Inorganics	Metals	Replaces J Estimated Value
D	Programmed	Results are reported from a diluted aliquot of sample.	Y			Dilution
E	Programmed	Reported value is estimated due to interferences. See comment in narrative.	Y	Inorganics	Metals	GEL E
M	Manual	Duplicate precision not met.	Y	Inorganics	Metals	Replaces *
o	Programmed	Analyte failed to recover within LCS limits (Organics only)	Y	Organics		
S	Manual	Reported value determined by the Method of Standard Additions (MSA)	Y	Inorganics		Not coded B/C Rarely performed
T	Programmed	Spike and/or spike duplicate sample recovery is outside control limits.	Y	Organics		GC/MS only
W	Manual	Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.	Y	Inorganics		No GFAA in house.
B	Programmed	The associated QC sample blank has a result $\geq 2X$ the MDA and, after corrections, result is \geq MDA for this sample	Y	Radiological		
Y	Manual	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			
+	Manual	Correlation coefficient for Method of Standard Additions (MSA) is < 0.995	Y	Inorganics		
B	Programmed	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	Y	General Chemistry		Replaces J Estimated Value
C	Programmed	Target analyte was detected in the sample and the associated blank. The associated blank concentration is \geq EQL or is > 5% of the measured concentration and/or decision level for associated samples.	Y	Inorganics	Metals	Replaces B Blank Detection
C	Programmed	Target analyte was detected in the sample and the associated blank. The associated blank concentration is \geq EQL or is > 5% of the measured concentration and/or decision level for associated samples.	Y	General Chemistry		Replaces B Blank Detection
<	Programmed	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide	Y	General Chemistry		for Reactive CN/S

Project Specific Qualifier Definitions for GEL Client Code: CPRC

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

Laboratory Certifications

List of current GEL Certifications as of 25 February 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	T104704235-15-10
Utah NELAP	SC000122014-16
Vermont	VT87156
Virginia NELAP	460202
Washington	C780-12

Volatile Analysis

Case Narrative

February 27, 2015
GC/MS Volatile
Technical Case Narrative
CH2M Hill Plateau Remediation Company (CPRC)
SDG #: GEL366158
Work Order #: 366158

Method/Analysis Information

Procedure: Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer

Analytical Method: SW846 8260C

Analytical Batch Number: 1454890

Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

Sample ID	Client ID
366158001	B2YXJ9
366158002	B2YXK0
366158003	B2YXL7
1203256971	Method Blank (MB)
1203256972	Laboratory Control Sample (LCS)
1203256973	Laboratory Control Sample (LCS)
1203256974	366158001(B2YXJ9) Post Spike (PS)
1203256975	366158001(B2YXJ9) Post Spike Duplicate (PSD)
1203256976	366158001(B2YXJ9) Post Spike (PS)
1203256977	366158001(B2YXJ9) Post Spike Duplicate (PSD)
1203258603	Method Blank (MB)
1203258604	Laboratory Control Sample (LCS)
1203258605	Laboratory Control Sample (LCS)

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The data results reported met all SOP and method criteria, unless otherwise discussed below.

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-OA-E-038 REV# 21.

Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package. The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate

recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

Initial Calibration

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

Continuing Calibration Verification Requirements

The calibration verification standard requirements were not all met for samples 1203256971 (MB), 1203256973 (LCS), 1203256976 (B2YXJ9PS), 1203256977 (B2YXJ9PSD), 366158001 (B2YXJ9), 366158002 (B2YXK0) and 366158003 (B2YXL7). There were no positive results for any of the analytes that were outside the calibration criteria. The results are reported.

Quality Control (QC) Information

Blank (MB) Statement

The blanks analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

Surrogate recoveries in all client and quality control samples were within the acceptance limits.

Laboratory Control Sample (LCS) Recovery

The LCS (See Below) recoveries were not all within the acceptance limits. There were no detected analytes in the samples. The results are reported.

Sample	Analyte	Value
1203256973 (LCS)	2-Chloro-1,3-butadiene	137* (70%-130%)

QC Sample Designation

Sample 366158001 (B2YXJ9) was designated for spike analysis.

Matrix Spike/Matrix Spike Duplicate Recovery Statement

The spike and/or spike duplicate (See Below) recoveries were not all within the acceptance limits.

Sample	Analyte	Value
1203256974 (B2YXJ9PS)	2-Butanone	58.8* (70%-130%)
	2-Hexanone	69.5* (70%-130%)
	Acetone	44.1* (70%-130%)
1203256975 (B2YXJ9PSD)	2-Butanone	58.3* (70%-130%)
	2-Hexanone	67.2* (70%-130%)
	Acetone	43.6* (70%-130%)

Relative Percent Difference (RPD) Statement

The RPDs between the matrix spike pair met the acceptance limits.

Internal Standard (ISTD) Acceptance

The internal standard responses in all client and quality control samples met the required acceptance criteria.

Technical Information

Holding Time Specifications

All samples in this SDG met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. 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.

Sample Preservation and Integrity

The pH of sample sample 366158003 (B2YXL7) was above 2 at the time of analysis. The sample was analyzed within 7 days from collection.

Sample Dilutions/Methanol Dilutions

Sample 366158001 (B2YXJ9) was diluted because target analyte concentrations exceeded the calibration range.

Analyte	366158
	003
1,2-Dichloroethane-d4	5X 1X
Bromofluorobenzene	5X 1X
Carbon tetrachloride	5X
Toluene-d8	5X 1X

Sample Re-extraction/Re-analysis

Re-analyses were not required for samples in this SDG.

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

DER #1378853 was generated for this SDG.

Manual Integrations

Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment

Tentatively identified compounds (TIC) were not required for this SDG.

Additional Comments

Additional comments were not required for this SDG.

Residual Chlorine

Residual Chlorine was not detected in any of the samples in this SDG.

System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
VOA2.I	Agilent 7890/5975 GC/MS w/ OI Eclipse/Archon Autosampler	HP7890N/HP5975C	DB-624	J&W, 60m x 0.25mm x 1.4um	Trap 10

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

February 27, 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: GEL366158 GEL Work Order: 366158

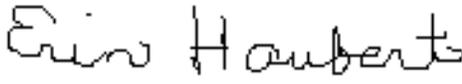
The Qualifiers in this report are defined as follows:

- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate). Value is estimated
- T Spike and/or spike duplicate 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.
- DL Indicates that sample is diluted.
- RA Indicates that sample is re-analyzed without re-extraction.
- RE Indicates that sample is re-extracted.

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.

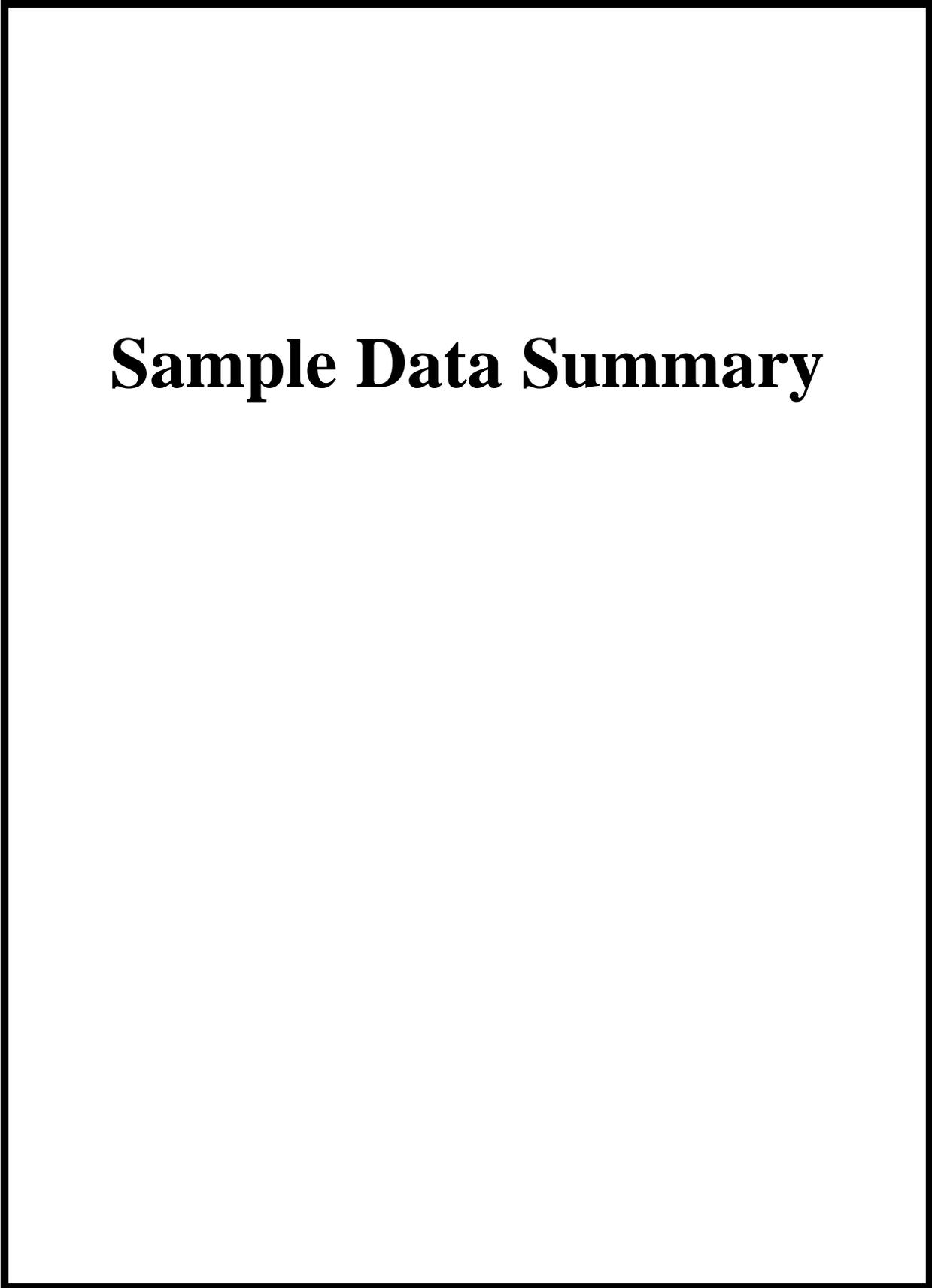
The following data validator verified the information presented in this data report:

Signature: 

Name: Erin Haubert

Date: 24 FEB 2015

Title: Data Validator



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 I15-009**

Report Date: February 18, 2015

Client Sample ID:	B2YXJ9	Project:	CPRC0115009
Sample ID:	366158001	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	29-JAN-15 07:00		
Receive Date:	30-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics											
<i>8260_VOA_GCMS_IX: COMMON "As Received"</i>											
1,1,1,2-Tetrachloroethane 630-20-6	U	0.00	0.300	5.00	ug/L	1	CDS1	02/03/15	1424	1454890	1
1,1,1-Trichloroethane 71-55-6	U	0.00	0.300	5.00	ug/L	1					
1,1,2,2-Tetrachloroethane 79-34-5	U	0.00	0.300	5.00	ug/L	1					
1,1,2-Trichloroethane 79-00-5	U	0.00	0.300	5.00	ug/L	1					
1,1-Dichloroethane 75-34-3	U	0.00	0.300	10.0	ug/L	1					
1,1-Dichloroethylene 75-35-4	U	0.00	0.300	10.0	ug/L	1					
1,2,3-Trichloropropane 96-18-4	U	0.00	0.300	5.00	ug/L	1					
1,2-Dibromo-3-chloropropane 96-12-8	U	0.00	0.500	5.00	ug/L	1					
1,2-Dibromoethane 106-93-4	U	0.00	0.300	5.00	ug/L	1					
1,2-Dichloroethane 107-06-2	U	0.00	0.300	5.00	ug/L	1					
1,2-Dichloropropane 78-87-5	U	0.00	0.300	5.00	ug/L	1					
2-Butanone 78-93-3	TU	0.00	3.00	10.0	ug/L	1					
2-Chloro-1,3-butadiene 126-99-8	U	0.00	0.300	10.0	ug/L	1					
2-Hexanone 591-78-6	TU	0.00	3.00	20.0	ug/L	1					
4-Methyl-2-pentanone 108-10-1	U	0.00	3.00	10.0	ug/L	1					
Acetone 67-64-1	TU	0.00	3.00	20.0	ug/L	1					
Acetonitrile 75-05-8	U	0.00	16.7	100	ug/L	1					
Acrolein 107-02-8	U	0.00	3.00	100	ug/L	1					

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 I15-009**

Report Date: February 18, 2015

Client Sample ID: B2YXJ9 Project: CPRC0115009
 Sample ID: 366158001 Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics											
<i>8260_VOA_GCMS_IX: COMMON "As Received"</i>											
Acrylonitrile	U	0.00	3.00	100	ug/L	1					
107-13-1											
Allyl chloride	U	0.00	3.00	10.0	ug/L	1					
107-05-1											
Benzene	U	0.00	0.300	5.00	ug/L	1					
71-43-2											
Bromoform	U	0.00	0.300	5.00	ug/L	1					
75-25-2											
Carbon disulfide	U	0.00	1.60	10.0	ug/L	1					
75-15-0											
Carbon tetrachloride	U	0.00	0.300	5.00	ug/L	1					
56-23-5											
Chlorobenzene	U	0.00	0.300	5.00	ug/L	1					
108-90-7											
Chloroethane	U	0.00	0.300	10.0	ug/L	1					
75-00-3											
Chloroform	U	0.00	0.300	5.00	ug/L	1					
67-66-3											
Chloromethane	U	0.00	0.300	2.00	ug/L	1					
74-87-3											
Dibromochloromethane	U	0.00	0.300	5.00	ug/L	1					
124-48-1											
Dibromomethane	U	0.00	0.300	10.0	ug/L	1					
74-95-3											
Dichlorodifluoromethane	U	0.00	0.300	10.0	ug/L	1					
75-71-8											
Ethyl methacrylate	U	0.00	3.00	10.0	ug/L	1					
97-63-2											
Ethylbenzene	U	0.00	0.300	5.00	ug/L	1					
100-41-4											
Iodomethane	U	0.00	3.00	10.0	ug/L	1					
74-88-4											
Isobutyl alcohol	U	0.00	33.0	500	ug/L	1					
78-83-1											
Methacrylonitrile	U	0.00	3.00	10.0	ug/L	1					
126-98-7											
Methylene chloride		5.15	1.60	5.00	ug/L	1					
75-09-2											
Styrene	U	0.00	0.300	5.00	ug/L	1					
100-42-5											

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 I15-009**

Report Date: February 18, 2015

Client Sample ID: B2YXJ9 Project: CPRC0115009
 Sample ID: 366158001 Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics											
<i>8260_VOA_GCMS_IX: COMMON "As Received"</i>											
Tetrachloroethylene 127-18-4	U	0.00	0.300	5.00	ug/L	1					
Toluene 108-88-3	U	0.00	0.300	5.00	ug/L	1					
Trichloroethylene 79-01-6	U	0.00	0.300	5.00	ug/L	1					
Vinyl acetate 108-05-4	U	0.00	1.60	50.0	ug/L	1					
Vinyl chloride 75-01-4	U	0.00	0.300	10.0	ug/L	1					
Xylenes (total) 1330-20-7	U	0.00	0.300	10.0	ug/L	1					
cis-1,3-Dichloropropylene 10061-01-5	U	0.00	0.300	5.00	ug/L	1					
trans-1,2-Dichloroethylene 156-60-5	U	0.00	0.300	5.00	ug/L	1					
trans-1,3-Dichloropropylene 10061-02-6	U	0.00	0.300	5.00	ug/L	1					
trans-1,4-Dichloro-2-butene 110-57-6	U	0.00	1.50	50.0	ug/L	1					

The following Analytical Methods were performed

Method	Description	Analyst	Comments
1	SW846 8260C		

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	8260_VOA_GCMS_IX: COMMON "As Received"	51.8 ug/L	50.0	104	(77%-123%)
Bromofluorobenzene	8260_VOA_GCMS_IX: COMMON "As Received"	52.3 ug/L	50.0	105	(80%-120%)
Toluene-d8	8260_VOA_GCMS_IX: COMMON "As Received"	45.5 ug/L	50.0	91.1	(80%-120%)

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 I15-009**

Report Date: February 18, 2015

Client Sample ID:	B2YXK0	Project:	CPRC0115009
Sample ID:	366158002	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	29-JAN-15 09:50		
Receive Date:	30-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics											
<i>8260_VOA_GCMS_IX: COMMON "As Received"</i>											
1,1,1,2-Tetrachloroethane	U	0.00	0.300	5.00	ug/L	1	CDS1	02/03/15	1654	1454890	1
630-20-6											
1,1,1-Trichloroethane	U	0.00	0.300	5.00	ug/L	1					
71-55-6											
1,1,2,2-Tetrachloroethane	U	0.00	0.300	5.00	ug/L	1					
79-34-5											
1,1,2-Trichloroethane	U	0.00	0.300	5.00	ug/L	1					
79-00-5											
1,1-Dichloroethane	U	0.00	0.300	10.0	ug/L	1					
75-34-3											
1,1-Dichloroethylene	U	0.00	0.300	10.0	ug/L	1					
75-35-4											
1,2,3-Trichloropropane	U	0.00	0.300	5.00	ug/L	1					
96-18-4											
1,2-Dibromo-3-chloropropane	U	0.00	0.500	5.00	ug/L	1					
96-12-8											
1,2-Dibromoethane	U	0.00	0.300	5.00	ug/L	1					
106-93-4											
1,2-Dichloroethane	U	0.00	0.300	5.00	ug/L	1					
107-06-2											
1,2-Dichloropropane	U	0.00	0.300	5.00	ug/L	1					
78-87-5											
2-Butanone	TU	0.00	3.00	10.0	ug/L	1					
78-93-3											
2-Chloro-1,3-butadiene	U	0.00	0.300	10.0	ug/L	1					
126-99-8											
2-Hexanone	TU	0.00	3.00	20.0	ug/L	1					
591-78-6											
4-Methyl-2-pentanone	U	0.00	3.00	10.0	ug/L	1					
108-10-1											
Acetone	TU	0.00	3.00	20.0	ug/L	1					
67-64-1											
Acetonitrile	U	0.00	16.7	100	ug/L	1					
75-05-8											
Acrolein	U	0.00	3.00	100	ug/L	1					
107-02-8											

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 I15-009**

Report Date: February 18, 2015

Client Sample ID: B2YXK0 Project: CPRC0115009
 Sample ID: 366158002 Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics											
<i>8260_VOA_GCMS_IX: COMMON "As Received"</i>											
Acrylonitrile	U	0.00	3.00	100	ug/L	1					
107-13-1											
Allyl chloride	U	0.00	3.00	10.0	ug/L	1					
107-05-1											
Benzene	U	0.00	0.300	5.00	ug/L	1					
71-43-2											
Bromoform	U	0.00	0.300	5.00	ug/L	1					
75-25-2											
Carbon disulfide	U	0.00	1.60	10.0	ug/L	1					
75-15-0											
Carbon tetrachloride	J	0.310	0.300	5.00	ug/L	1					
56-23-5											
Chlorobenzene	U	0.00	0.300	5.00	ug/L	1					
108-90-7											
Chloroethane	U	0.00	0.300	10.0	ug/L	1					
75-00-3											
Chloroform	U	0.00	0.300	5.00	ug/L	1					
67-66-3											
Chloromethane	U	0.00	0.300	2.00	ug/L	1					
74-87-3											
Dibromochloromethane	U	0.00	0.300	5.00	ug/L	1					
124-48-1											
Dibromomethane	U	0.00	0.300	10.0	ug/L	1					
74-95-3											
Dichlorodifluoromethane	U	0.00	0.300	10.0	ug/L	1					
75-71-8											
Ethyl methacrylate	U	0.00	3.00	10.0	ug/L	1					
97-63-2											
Ethylbenzene	U	0.00	0.300	5.00	ug/L	1					
100-41-4											
Iodomethane	U	0.00	3.00	10.0	ug/L	1					
74-88-4											
Isobutyl alcohol	U	0.00	33.0	500	ug/L	1					
78-83-1											
Methacrylonitrile	U	0.00	3.00	10.0	ug/L	1					
126-98-7											
Methylene chloride	U	1.29	1.60	5.00	ug/L	1					
75-09-2											
Styrene	U	0.00	0.300	5.00	ug/L	1					
100-42-5											

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 I15-009**

Report Date: February 18, 2015

Client Sample ID: B2YXK0 Project: CPRC0115009
 Sample ID: 366158002 Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics											
<i>8260_VOA_GCMS_IX: COMMON "As Received"</i>											
Tetrachloroethylene 127-18-4	U	0.00	0.300	5.00	ug/L	1					
Toluene 108-88-3	U	0.00	0.300	5.00	ug/L	1					
Trichloroethylene 79-01-6	U	0.00	0.300	5.00	ug/L	1					
Vinyl acetate 108-05-4	U	0.00	1.60	50.0	ug/L	1					
Vinyl chloride 75-01-4	U	0.00	0.300	10.0	ug/L	1					
Xylenes (total) 1330-20-7	U	0.00	0.300	10.0	ug/L	1					
cis-1,3-Dichloropropylene 10061-01-5	U	0.00	0.300	5.00	ug/L	1					
trans-1,2-Dichloroethylene 156-60-5	U	0.00	0.300	5.00	ug/L	1					
trans-1,3-Dichloropropylene 10061-02-6	U	0.00	0.300	5.00	ug/L	1					
trans-1,4-Dichloro-2-butene 110-57-6	U	0.00	1.50	50.0	ug/L	1					

The following Analytical Methods were performed

Method	Description	Analyst	Comments
1	SW846 8260C		

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	8260_VOA_GCMS_IX: COMMON "As Received"	52.4 ug/L	50.0	105	(77%-123%)
Bromofluorobenzene	8260_VOA_GCMS_IX: COMMON "As Received"	52.3 ug/L	50.0	105	(80%-120%)
Toluene-d8	8260_VOA_GCMS_IX: COMMON "As Received"	46.1 ug/L	50.0	92.2	(80%-120%)

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 I15-009**

Report Date: February 18, 2015

Client Sample ID:	B2YXL7	Project:	CPRC0115009
Sample ID:	366158003	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	29-JAN-15 11:37		
Receive Date:	30-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<i>8260_VOA_GCMS_IX: COMMON "As Received"</i>										
1,1,1,2-Tetrachloroethane	U	0.00	0.300	5.00	ug/L	1	CDS1 02/04/15	1102	1454890	1
630-20-6										
1,1,1-Trichloroethane	U	0.00	0.300	5.00	ug/L	1				
71-55-6										
1,1,2,2-Tetrachloroethane	U	0.00	0.300	5.00	ug/L	1				
79-34-5										
1,1,2-Trichloroethane	U	0.00	0.300	5.00	ug/L	1				
79-00-5										
1,1-Dichloroethane	U	0.00	0.300	10.0	ug/L	1				
75-34-3										
1,1-Dichloroethylene	U	0.00	0.300	10.0	ug/L	1				
75-35-4										
1,2,3-Trichloropropane	U	0.00	0.300	5.00	ug/L	1				
96-18-4										
1,2-Dibromo-3-chloropropane	U	0.00	0.500	5.00	ug/L	1				
96-12-8										
1,2-Dibromoethane	U	0.00	0.300	5.00	ug/L	1				
106-93-4										
1,2-Dichloroethane	U	0.00	0.300	5.00	ug/L	1				
107-06-2										
1,2-Dichloropropane	U	0.00	0.300	5.00	ug/L	1				
78-87-5										
2-Butanone	TU	0.00	3.00	10.0	ug/L	1				
78-93-3										
2-Chloro-1,3-butadiene	U	0.00	0.300	10.0	ug/L	1				
126-99-8										
2-Hexanone	TU	0.00	3.00	20.0	ug/L	1				
591-78-6										
4-Methyl-2-pentanone	U	0.00	3.00	10.0	ug/L	1				
108-10-1										
Acetone	TU	0.00	3.00	20.0	ug/L	1				
67-64-1										
Acetonitrile	U	0.00	16.7	100	ug/L	1				
75-05-8										
Acrolein	U	0.00	3.00	100	ug/L	1				
107-02-8										

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 I15-009**

Report Date: February 18, 2015

Client Sample ID: B2YXL7 Project: CPRC0115009
 Sample ID: 366158003 Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics											
<i>8260_VOA_GCMS_IX: COMMON "As Received"</i>											
Acrylonitrile	U	0.00	3.00	100	ug/L	1					
107-13-1											
Allyl chloride	U	0.00	3.00	10.0	ug/L	1					
107-05-1											
Benzene	U	0.00	0.300	5.00	ug/L	1					
71-43-2											
Bromoform	U	0.00	0.300	5.00	ug/L	1					
75-25-2											
Carbon disulfide	U	0.00	1.60	10.0	ug/L	1					
75-15-0											
Chlorobenzene	U	0.00	0.300	5.00	ug/L	1					
108-90-7											
Chloroethane	U	0.00	0.300	10.0	ug/L	1					
75-00-3											
Chloroform	J	3.08	0.300	5.00	ug/L	1					
67-66-3											
Chloromethane	U	0.00	0.300	2.00	ug/L	1					
74-87-3											
Dibromochloromethane	U	0.00	0.300	5.00	ug/L	1					
124-48-1											
Dibromomethane	U	0.00	0.300	10.0	ug/L	1					
74-95-3											
Dichlorodifluoromethane	U	0.00	0.300	10.0	ug/L	1					
75-71-8											
Ethyl methacrylate	U	0.00	3.00	10.0	ug/L	1					
97-63-2											
Ethylbenzene	U	0.00	0.300	5.00	ug/L	1					
100-41-4											
Iodomethane	U	0.00	3.00	10.0	ug/L	1					
74-88-4											
Isobutyl alcohol	U	0.00	33.0	500	ug/L	1					
78-83-1											
Methacrylonitrile	U	0.00	3.00	10.0	ug/L	1					
126-98-7											
Methylene chloride	U	0.00	1.60	5.00	ug/L	1					
75-09-2											
Styrene	U	0.00	0.300	5.00	ug/L	1					
100-42-5											
Tetrachloroethylene	U	0.00	0.300	5.00	ug/L	1					
127-18-4											

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 I15-009**

Report Date: February 18, 2015

Client Sample ID: B2YXL7 Project: CPRC015009
 Sample ID: 366158003 Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics											
<i>8260_VOA_GCMS_IX: COMMON "As Received"</i>											
Toluene	U	0.00	0.300	5.00	ug/L	1					
108-88-3											
Trichloroethylene	J	1.41	0.300	5.00	ug/L	1					
79-01-6											
Vinyl acetate	U	0.00	1.60	50.0	ug/L	1					
108-05-4											
Vinyl chloride	U	0.00	0.300	10.0	ug/L	1					
75-01-4											
Xylenes (total)	U	0.00	0.300	10.0	ug/L	1					
1330-20-7											
cis-1,3-Dichloropropylene	U	0.00	0.300	5.00	ug/L	1					
10061-01-5											
trans-1,2-Dichloroethylene	U	0.00	0.300	5.00	ug/L	1					
156-60-5											
trans-1,3-Dichloropropylene	U	0.00	0.300	5.00	ug/L	1					
10061-02-6											
trans-1,4-Dichloro-2-butene	U	0.00	1.50	50.0	ug/L	1					
110-57-6											
Carbon tetrachloride	D	174	1.50	10.0	ug/L	5	CDS1	02/04/15	1704	1454890	2
56-23-5											

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 8260C	
2	SW846 8260C	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	8260_VOA_GCMS_IX: COMMON "As Received"	51.4 ug/L	50.0	103	(77%-123%)
Bromofluorobenzene	8260_VOA_GCMS_IX: COMMON "As Received"	51.5 ug/L	50.0	103	(80%-120%)
Toluene-d8	8260_VOA_GCMS_IX: COMMON "As Received"	45.8 ug/L	50.0	91.5	(80%-120%)
1,2-Dichloroethane-d4	8260_VOA_GCMS_IX: COMMON "As Received"	250 ug/L	50.0	99.8	(77%-123%)
Bromofluorobenzene	8260_VOA_GCMS_IX: COMMON "As Received"	265 ug/L	50.0	106	(80%-120%)

Quality Control Summary

February 27, 2015
GEL LABORATORIES LLC

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

QC Summary

Report Date: February 18, 2015

Page 1 of 16

CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 366158

Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS										
Batch	1454890									
QC1203256972 LCS										
1,1,1,2-Tetrachloroethane	50.0		51.2	ug/L		102	(70%-130%)	CDS1	02/03/15	08:53
1,1,1-Trichloroethane	50.0		60.3	ug/L		121	(70%-130%)			
1,1,2,2-Tetrachloroethane	50.0		47.3	ug/L		94.5	(70%-130%)			
1,1,2-Trichloroethane	50.0		49.1	ug/L		98.3	(70%-130%)			
1,1-Dichloroethane	50.0		49.6	ug/L		99.2	(70%-130%)			
1,1-Dichloroethylene	50.0		51.1	ug/L		102	(70%-130%)			
1,2,3-Trichloropropane	50.0		49.3	ug/L		98.5	(70%-130%)			
1,2-Dibromo-3-chloropropane	50.0		55.8	ug/L		112	(70%-130%)			
1,2-Dibromoethane	50.0		54.0	ug/L		108	(70%-130%)			
1,2-Dichloroethane	50.0		55.8	ug/L		112	(70%-130%)			
1,2-Dichloropropane	50.0		48.3	ug/L		96.6	(70%-130%)			
2-Butanone	250		264	ug/L		106	(70%-130%)			
2-Hexanone	250		265	ug/L		106	(70%-130%)			
4-Methyl-2-pentanone	250		232	ug/L		93	(70%-130%)			
Acetone	250		285	ug/L		114	(70%-130%)			
Acetonitrile	1250		1110	ug/L		88.7	(70%-130%)			
Benzene	50.0		48.9	ug/L		97.8	(70%-130%)			
Bromoform	50.0		59.7	ug/L		119	(70%-130%)			
Carbon disulfide	250		243	ug/L		97	(70%-130%)			
Carbon tetrachloride	50.0		60.3	ug/L		121	(70%-130%)			

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454890										
Chlorobenzene	50.0			50.0	ug/L		100	(70%-130%)	CDS1	02/03/15	08:53
Chloroethane	50.0			47.6	ug/L		95.2	(70%-130%)			
Chloroform	50.0			53.9	ug/L		108	(70%-130%)			
Chloromethane	50.0			56.8	ug/L		114	(70%-130%)			
Dibromochloromethane	50.0			60.1	ug/L		120	(70%-130%)			
Dibromomethane	50.0			54.1	ug/L		108	(70%-130%)			
Dichlorodifluoromethane	50.0			54.2	ug/L		108	(70%-130%)			
Ethylbenzene	50.0			51.0	ug/L		102	(70%-130%)			
Iodomethane	250			267	ug/L		107	(70%-130%)			
Methylene chloride	50.0			44.8	ug/L		89.6	(70%-130%)			
Styrene	50.0			56.0	ug/L		112	(70%-130%)			
Tetrachloroethylene	50.0			52.0	ug/L		104	(70%-130%)			
Toluene	50.0			46.8	ug/L		93.5	(70%-130%)			
Trichloroethylene	50.0			53.4	ug/L		107	(70%-130%)			
Vinyl acetate	250			262	ug/L		105	(70%-130%)			
Vinyl chloride	50.0			56.5	ug/L		113	(70%-130%)			
Xylenes (total)	150			153	ug/L		102	(70%-130%)			
cis-1,3-Dichloropropylene	50.0			58.5	ug/L		117	(70%-130%)			
trans-1,2-Dichloroethylene	50.0			49.4	ug/L		98.8	(70%-130%)			
trans-1,3-Dichloropropylene	50.0			54.8	ug/L		110	(70%-130%)			
**1,2-Dichloroethane-d4	50.0			52.2	ug/L		104	(77%-123%)			

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454890										
**Bromofluorobenzene	50.0			49.6	ug/L		99.1	(80%-120%)			
**Toluene-d8	50.0			46.5	ug/L		92.9	(80%-120%)	CDS1	02/03/15	08:53
QC1203256973	LCS										
2-Chloro-1,3-butadiene	50.0			68.3	ug/L		137*	(70%-130%)		02/03/15	09:23
Acrolein	250			219	ug/L		87.6	(70%-130%)			
Acrylonitrile	250			249	ug/L		99.5	(70%-130%)			
Allyl chloride	250			288	ug/L		115	(70%-130%)			
Ethyl methacrylate	250			267	ug/L		107	(70%-130%)			
Isobutyl alcohol	2500			2860	ug/L		114	(70%-130%)			
Methacrylonitrile	250			268	ug/L		107	(70%-130%)			
trans-1,4-Dichloro-2-butene	250			264	ug/L		106	(70%-130%)			
**1,2-Dichloroethane-d4	50.0			52.3	ug/L		105	(77%-123%)			
**Bromofluorobenzene	50.0			50.1	ug/L		100	(80%-120%)			
**Toluene-d8	50.0			45.6	ug/L		91.2	(80%-120%)			
QC1203258604	LCS										
1,1,1,2-Tetrachloroethane	50.0			46.8	ug/L		93.6	(70%-130%)		02/04/15	08:01
1,1,1-Trichloroethane	50.0			54.1	ug/L		108	(70%-130%)			
1,1,2,2-Tetrachloroethane	50.0			48.5	ug/L		96.9	(70%-130%)			
1,1,2-Trichloroethane	50.0			47.5	ug/L		95	(70%-130%)			
1,1-Dichloroethane	50.0			47.6	ug/L		95.2	(70%-130%)			
1,1-Dichloroethylene	50.0			47.0	ug/L		94.1	(70%-130%)			
1,2,3-Trichloropropane	50.0			48.9	ug/L		97.8	(70%-130%)			
1,2-Dibromo-3-chloropropane	50.0			55.6	ug/L		111	(70%-130%)			
1,2-Dibromoethane	50.0			51.9	ug/L		104	(70%-130%)			

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454890										
1,2-Dichloroethane	50.0			51.9	ug/L		104	(70%-130%)	CDS1	02/04/15	08:01
1,2-Dichloropropane	50.0			45.7	ug/L		91.4	(70%-130%)			
2-Butanone	250			267	ug/L		107	(70%-130%)			
2-Hexanone	250			269	ug/L		107	(70%-130%)			
4-Methyl-2-pentanone	250			232	ug/L		92.7	(70%-130%)			
Acetone	250			289	ug/L		115	(70%-130%)			
Acetonitrile	1250			1140	ug/L		91.1	(70%-130%)			
Benzene	50.0			46.0	ug/L		92	(70%-130%)			
Bromoform	50.0			58.0	ug/L		116	(70%-130%)			
Carbon disulfide	250			230	ug/L		92	(70%-130%)			
Carbon tetrachloride	50.0			53.7	ug/L		107	(70%-130%)			
Chlorobenzene	50.0			47.0	ug/L		94.1	(70%-130%)			
Chloroethane	50.0			47.9	ug/L		95.9	(70%-130%)			
Chloroform	50.0			50.6	ug/L		101	(70%-130%)			
Chloromethane	50.0			55.6	ug/L		111	(70%-130%)			
Dibromochloromethane	50.0			56.7	ug/L		113	(70%-130%)			
Dibromomethane	50.0			51.4	ug/L		103	(70%-130%)			
Dichlorodifluoromethane	50.0			59.5	ug/L		119	(70%-130%)			
Ethylbenzene	50.0			47.1	ug/L		94.1	(70%-130%)			
Iodomethane	250			246	ug/L		98.5	(70%-130%)			
Methylene chloride	50.0			43.0	ug/L		86	(70%-130%)			

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454890										
Styrene	50.0			52.6	ug/L		105	(70%-130%)			
Tetrachloroethylene	50.0			47.2	ug/L		94.3	(70%-130%)	CDS1	02/04/15	08:01
Toluene	50.0			43.5	ug/L		87	(70%-130%)			
Trichloroethylene	50.0			48.3	ug/L		96.6	(70%-130%)			
Vinyl acetate	250			236	ug/L		94.5	(70%-130%)			
Vinyl chloride	50.0			53.6	ug/L		107	(70%-130%)			
Xylenes (total)	150			142	ug/L		94.6	(70%-130%)			
cis-1,3-Dichloropropylene	50.0			54.9	ug/L		110	(70%-130%)			
trans-1,2-Dichloroethylene	50.0			46.4	ug/L		92.8	(70%-130%)			
trans-1,3-Dichloropropylene	50.0			52.1	ug/L		104	(70%-130%)			
**1,2-Dichloroethane-d4	50.0			54.3	ug/L		109	(77%-123%)			
**Bromofluorobenzene	50.0			50.8	ug/L		102	(80%-120%)			
**Toluene-d8	50.0			46.9	ug/L		93.9	(80%-120%)			
QC1203258605 LCS											
2-Chloro-1,3-butadiene	50.0			54.7	ug/L		109	(70%-130%)		02/04/15	09:33
Acrolein	250			264	ug/L		106	(70%-130%)			
Acrylonitrile	250			207	ug/L		82.7	(70%-130%)			
Allyl chloride	250			221	ug/L		88.2	(70%-130%)			
Ethyl methacrylate	250			228	ug/L		91.2	(70%-130%)			
Isobutyl alcohol	2500			2340	ug/L		93.7	(70%-130%)			
Methacrylonitrile	250			226	ug/L		90.4	(70%-130%)			
trans-1,4-Dichloro-2-butene	250			223	ug/L		89.1	(70%-130%)			
**1,2-Dichloroethane-d4	50.0			52.2	ug/L		104	(77%-123%)			

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454890										
**Bromofluorobenzene	50.0			50.9	ug/L		102	(80%-120%)	CDS1	02/04/15	09:33
**Toluene-d8	50.0			46.4	ug/L		92.7	(80%-120%)			
QC1203256971 MB											
1,1,1,2-Tetrachloroethane			U	0.300	ug/L					02/03/15	09:53
1,1,1-Trichloroethane			U	0.300	ug/L						
1,1,2,2-Tetrachloroethane			U	0.300	ug/L						
1,1,2-Trichloroethane			U	0.300	ug/L						
1,1-Dichloroethane			U	0.300	ug/L						
1,1-Dichloroethylene			U	0.300	ug/L						
1,2,3-Trichloropropane			U	0.300	ug/L						
1,2-Dibromo-3-chloropropane			U	0.500	ug/L						
1,2-Dibromoethane			U	0.300	ug/L						
1,2-Dichloroethane			U	0.300	ug/L						
1,2-Dichloropropane			U	0.300	ug/L						
2-Butanone			U	3.00	ug/L						
2-Chloro-1,3-butadiene			U	0.300	ug/L						
2-Hexanone			U	3.00	ug/L						
4-Methyl-2-pentanone			U	3.00	ug/L						
Acetone			U	3.00	ug/L						
Acetonitrile			U	16.7	ug/L						
Acrolein			U	3.00	ug/L						
Acrylonitrile			U	3.00	ug/L						

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454890										
Allyl chloride			U	3.00	ug/L				CDS1	02/03/15	09:53
Benzene			U	0.300	ug/L						
Bromoform			U	0.300	ug/L						
Carbon disulfide			U	1.60	ug/L						
Carbon tetrachloride			U	0.300	ug/L						
Chlorobenzene			U	0.300	ug/L						
Chloroethane			U	0.300	ug/L						
Chloroform			U	0.300	ug/L						
Chloromethane			U	0.300	ug/L						
Dibromochloromethane			U	0.300	ug/L						
Dibromomethane			U	0.300	ug/L						
Dichlorodifluoromethane			U	0.300	ug/L						
Ethyl methacrylate			U	3.00	ug/L						
Ethylbenzene			U	0.300	ug/L						
Iodomethane			U	3.00	ug/L						
Isobutyl alcohol			U	33.0	ug/L						
Methacrylonitrile			U	3.00	ug/L						
Methylene chloride			U	1.60	ug/L						
Styrene			U	0.300	ug/L						
Tetrachloroethylene			U	0.300	ug/L						
Toluene			U	0.300	ug/L						

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454890										
Trichloroethylene			U	0.300	ug/L						
Vinyl acetate			U	1.60	ug/L				CDS1	02/03/15	09:53
Vinyl chloride			U	0.300	ug/L						
Xylenes (total)			U	0.300	ug/L						
cis-1,3-Dichloropropylene			U	0.300	ug/L						
trans-1,2-Dichloroethylene			U	0.300	ug/L						
trans-1,3-Dichloropropylene			U	0.300	ug/L						
trans-1,4-Dichloro-2-butene			U	1.50	ug/L						
**1,2-Dichloroethane-d4	50.0			52.8	ug/L		106	(77%-123%)			
**Bromofluorobenzene	50.0			50.1	ug/L		100	(80%-120%)			
**Toluene-d8	50.0			45.3	ug/L		90.5	(80%-120%)			
QC1203258603 MB											
1,1,1,2-Tetrachloroethane			U	0.300	ug/L					02/04/15	10:32
1,1,1-Trichloroethane			U	0.300	ug/L						
1,1,1,2,2-Tetrachloroethane			U	0.300	ug/L						
1,1,2-Trichloroethane			U	0.300	ug/L						
1,1-Dichloroethane			U	0.300	ug/L						
1,1-Dichloroethylene			U	0.300	ug/L						
1,2,3-Trichloropropane			U	0.300	ug/L						
1,2-Dibromo-3-chloropropane			U	0.500	ug/L						
1,2-Dibromoethane			U	0.300	ug/L						
1,2-Dichloroethane			U	0.300	ug/L						
1,2-Dichloropropane			U	0.300	ug/L						

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454890										
2-Butanone			U	3.00	ug/L				CDS1	02/04/15	10:32
2-Chloro-1,3-butadiene			U	0.300	ug/L						
2-Hexanone			U	3.00	ug/L						
4-Methyl-2-pentanone			U	3.00	ug/L						
Acetone			U	3.00	ug/L						
Acetonitrile			U	16.7	ug/L						
Acrolein			U	3.00	ug/L						
Acrylonitrile			U	3.00	ug/L						
Allyl chloride			U	3.00	ug/L						
Benzene			U	0.300	ug/L						
Bromoform			U	0.300	ug/L						
Carbon disulfide			U	1.60	ug/L						
Carbon tetrachloride			U	0.300	ug/L						
Chlorobenzene			U	0.300	ug/L						
Chloroethane			U	0.300	ug/L						
Chloroform			U	0.300	ug/L						
Chloromethane			U	0.300	ug/L						
Dibromochloromethane			U	0.300	ug/L						
Dibromomethane			U	0.300	ug/L						
Dichlorodifluoromethane			U	0.300	ug/L						
Ethyl methacrylate			U	3.00	ug/L						

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454890										
Ethylbenzene			U	0.300	ug/L						
Iodomethane			U	3.00	ug/L				CDS1	02/04/15	10:32
Isobutyl alcohol			U	33.0	ug/L						
Methacrylonitrile			U	3.00	ug/L						
Methylene chloride			U	1.60	ug/L						
Styrene			U	0.300	ug/L						
Tetrachloroethylene			U	0.300	ug/L						
Toluene			U	0.300	ug/L						
Trichloroethylene			U	0.300	ug/L						
Vinyl acetate			U	1.60	ug/L						
Vinyl chloride			U	0.300	ug/L						
Xylenes (total)			U	0.300	ug/L						
cis-1,3-Dichloropropylene			U	0.300	ug/L						
trans-1,2-Dichloroethylene			U	0.300	ug/L						
trans-1,3-Dichloropropylene			U	0.300	ug/L						
trans-1,4-Dichloro-2-butene			U	1.50	ug/L						
**1,2-Dichloroethane-d4	50.0			51.8	ug/L		104	(77%-123%)			
**Bromofluorobenzene	50.0			51.1	ug/L		102	(80%-120%)			
**Toluene-d8	50.0			46.2	ug/L		92.4	(80%-120%)			
QC1203256974 366158001 PS											
1,1,1,2-Tetrachloroethane	50.0	U	0.00	48.6	ug/L		97.1	(70%-130%)		02/03/15	14:54
1,1,1-Trichloroethane	50.0	U	0.00	56.5	ug/L		113	(70%-130%)			
1,1,2,2-Tetrachloroethane	50.0	U	0.00	48.4	ug/L		96.8	(70%-130%)			

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454890										
1,1,2-Trichloroethane	50.0	U	0.00		47.7	ug/L	95.5	(70%-130%)	CDS1	02/03/15	14:54
1,1-Dichloroethane	50.0	U	0.00		50.0	ug/L	100	(70%-130%)			
1,1-Dichloroethylene	50.0	U	0.00		51.2	ug/L	102	(70%-130%)			
1,2,3-Trichloropropane	50.0	U	0.00		48.3	ug/L	96.5	(70%-130%)			
1,2-Dibromo-3-chloropropane	50.0	U	0.00		55.3	ug/L	111	(70%-130%)			
1,2-Dibromoethane	50.0	U	0.00		50.7	ug/L	101	(70%-130%)			
1,2-Dichloroethane	50.0	U	0.00		52.3	ug/L	105	(70%-130%)			
1,2-Dichloropropane	50.0	U	0.00		49.0	ug/L	98	(70%-130%)			
2-Butanone	250	TU	0.00	T	147	ug/L	58.8 *	(70%-130%)			
2-Hexanone	250	TU	0.00	T	174	ug/L	69.5 *	(70%-130%)			
4-Methyl-2-pentanone	250	U	0.00		216	ug/L	86.4	(70%-130%)			
Acetone	250	TU	0.00	T	110	ug/L	44.1 *	(70%-130%)			
Acetonitrile	1250	U	0.00		1140	ug/L	91.4	(70%-130%)			
Benzene	50.0	U	0.00		48.7	ug/L	97.4	(70%-130%)			
Bromoform	50.0	U	0.00		54.6	ug/L	109	(70%-130%)			
Carbon disulfide	250	U	0.00		252	ug/L	101	(70%-130%)			
Carbon tetrachloride	50.0	U	0.00		56.8	ug/L	114	(70%-130%)			
Chlorobenzene	50.0	U	0.00		48.4	ug/L	96.7	(70%-130%)			
Chloroethane	50.0	U	0.00		43.2	ug/L	86.5	(70%-130%)			
Chloroform	50.0	U	0.00		52.2	ug/L	104	(70%-130%)			
Chloromethane	50.0	U	0.00		46.2	ug/L	92.3	(70%-130%)			

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454890										
Dibromochloromethane	50.0	U	0.00	56.1	ug/L		112	(70%-130%)			
Dibromomethane	50.0	U	0.00	52.0	ug/L		104	(70%-130%)	CDS1	02/03/15	14:54
Dichlorodifluoromethane	50.0	U	0.00	44.0	ug/L		88	(70%-130%)			
Ethylbenzene	50.0	U	0.00	49.7	ug/L		99.4	(70%-130%)			
Iodomethane	250	U	0.00	262	ug/L		105	(70%-130%)			
Methylene chloride	50.0		5.15	49.7	ug/L		89.1	(70%-130%)			
Styrene	50.0	U	0.00	53.1	ug/L		106	(70%-130%)			
Tetrachloroethylene	50.0	U	0.00	49.1	ug/L		98.2	(70%-130%)			
Toluene	50.0	U	0.00	46.0	ug/L		91.9	(70%-130%)			
Trichloroethylene	50.0	U	0.00	51.1	ug/L		102	(70%-130%)			
Vinyl acetate	250	U	0.00	210	ug/L		84.1	(70%-130%)			
Vinyl chloride	50.0	U	0.00	46.5	ug/L		92.9	(70%-130%)			
Xylenes (total)	150	U	0.00	147	ug/L		98.3	(70%-130%)			
cis-1,3-Dichloropropylene	50.0	U	0.00	55.3	ug/L		111	(70%-130%)			
trans-1,2-Dichloroethylene	50.0	U	0.00	49.5	ug/L		99	(70%-130%)			
trans-1,3-Dichloropropylene	50.0	U	0.00	52.1	ug/L		104	(70%-130%)			
**1,2-Dichloroethane-d4	50.0		51.8	51.7	ug/L		103	(77%-123%)			
**Bromofluorobenzene	50.0		52.3	50.8	ug/L		102	(80%-120%)			
**Toluene-d8	50.0		45.5	46.8	ug/L		93.5	(80%-120%)			
QC1203256976 366158001 PS											
2-Chloro-1,3-butadiene	50.0	U	0.00	59.3	ug/L		119	(70%-130%)		02/03/15	15:54
Acrolein	250	U	0.00	273	ug/L		109	(70%-130%)			
Acrylonitrile	250	U	0.00	217	ug/L		86.8	(70%-130%)			

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454890										
Allyl chloride	250	U	0.00	242	ug/L		96.6	(70%-130%)	CDS1	02/03/15	15:54
Ethyl methacrylate	250	U	0.00	237	ug/L		94.6	(70%-130%)			
Isobutyl alcohol	2500	U	0.00	2510	ug/L		100	(70%-130%)			
Methacrylonitrile	250	U	0.00	239	ug/L		95.4	(70%-130%)			
trans-1,4-Dichloro-2-butene	250	U	0.00	228	ug/L		91.3	(70%-130%)			
**1,2-Dichloroethane-d4	50.0		51.8	52.1	ug/L		104	(77%-123%)			
**Bromofluorobenzene	50.0		52.3	51.6	ug/L		103	(80%-120%)			
**Toluene-d8	50.0		45.5	45.9	ug/L		91.8	(80%-120%)			
QC1203256975 366158001 PSD											
1,1,1,2-Tetrachloroethane	50.0	U	0.00	48.8	ug/L	0.452	97.5	(0%-20%)		02/03/15	15:24
1,1,1-Trichloroethane	50.0	U	0.00	57.2	ug/L	1.37	114	(0%-20%)			
1,1,2,2-Tetrachloroethane	50.0	U	0.00	46.7	ug/L	3.55	93.4	(0%-20%)			
1,1,2-Trichloroethane	50.0	U	0.00	47.2	ug/L	1.22	94.3	(0%-20%)			
1,1-Dichloroethane	50.0	U	0.00	50.1	ug/L	0.0599	100	(0%-20%)			
1,1-Dichloroethylene	50.0	U	0.00	51.6	ug/L	0.837	103	(0%-20%)			
1,2,3-Trichloropropane	50.0	U	0.00	46.8	ug/L	3.14	93.5	(0%-20%)			
1,2-Dibromo-3-chloropropane	50.0	U	0.00	52.8	ug/L	4.74	106	(0%-20%)			
1,2-Dibromoethane	50.0	U	0.00	50.4	ug/L	0.634	101	(0%-20%)			
1,2-Dichloroethane	50.0	U	0.00	53.0	ug/L	1.25	106	(0%-20%)			
1,2-Dichloropropane	50.0	U	0.00	49.1	ug/L	0.183	98.2	(0%-20%)			
2-Butanone	250	TU	0.00	T	146	ug/L	0.915	58.3*	(0%-20%)		
2-Hexanone	250	TU	0.00	T	168	ug/L	3.35	67.2*	(0%-20%)		

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Parname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454890										
4-Methyl-2-pentanone	250	U	0.00		210	ug/L	2.59	84.2	(0%-20%)	CDS1	02/03/15 15:24
Acetone	250	TU	0.00	T	109	ug/L	1.14	43.6*	(0%-20%)		
Acetonitrile	1250	U	0.00		1100	ug/L	3.40	88.4	(0%-20%)		
Benzene	50.0	U	0.00		49.5	ug/L	1.49	98.9	(0%-20%)		
Bromoform	50.0	U	0.00		55.5	ug/L	1.60	111	(0%-20%)		
Carbon disulfide	250	U	0.00		249	ug/L	1.11	99.8	(0%-20%)		
Carbon tetrachloride	50.0	U	0.00		57.0	ug/L	0.246	114	(0%-20%)		
Chlorobenzene	50.0	U	0.00		47.8	ug/L	1.27	95.5	(0%-20%)		
Chloroethane	50.0	U	0.00		41.4	ug/L	4.30	82.8	(0%-20%)		
Chloroform	50.0	U	0.00		52.7	ug/L	0.896	105	(0%-20%)		
Chloromethane	50.0	U	0.00		46.7	ug/L	1.08	93.3	(0%-20%)		
Dibromochloromethane	50.0	U	0.00		55.2	ug/L	1.62	110	(0%-20%)		
Dibromomethane	50.0	U	0.00		52.2	ug/L	0.403	104	(0%-20%)		
Dichlorodifluoromethane	50.0	U	0.00		43.2	ug/L	1.88	86.4	(0%-20%)		
Ethylbenzene	50.0	U	0.00		49.2	ug/L	0.930	98.5	(0%-20%)		
Iodomethane	250	U	0.00		261	ug/L	0.188	104	(0%-20%)		
Methylene chloride	50.0		5.15		49.0	ug/L	1.42	87.7	(0%-20%)		
Styrene	50.0	U	0.00		53.8	ug/L	1.20	108	(0%-20%)		
Tetrachloroethylene	50.0	U	0.00		48.4	ug/L	1.35	96.9	(0%-20%)		
Toluene	50.0	U	0.00		45.0	ug/L	2.00	90.1	(0%-20%)		
Trichloroethylene	50.0	U	0.00		52.4	ug/L	2.51	105	(0%-20%)		

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454890										
Vinyl acetate	250	U	0.00	213	ug/L	1.05	85	(0%-20%)			
Vinyl chloride	50.0	U	0.00	47.2	ug/L	1.54	94.3	(0%-20%)	CDS1	02/03/15	15:24
Xylenes (total)	150	U	0.00	147	ug/L	0.605	97.7	(0%-20%)			
cis-1,3-Dichloropropylene	50.0	U	0.00	55.3	ug/L	0.0181	111	(0%-20%)			
trans-1,2-Dichloroethylene	50.0	U	0.00	49.6	ug/L	0.262	99.2	(0%-20%)			
trans-1,3-Dichloropropylene	50.0	U	0.00	51.3	ug/L	1.55	103	(0%-20%)			
**1,2-Dichloroethane-d4	50.0		51.8	51.7	ug/L		103	(77%-123%)			
**Bromofluorobenzene	50.0		52.3	50.2	ug/L		100	(80%-120%)			
**Toluene-d8	50.0		45.5	45.7	ug/L		91.4	(80%-120%)			
QC1203256977 366158001 PSD											
2-Chloro-1,3-butadiene	50.0	U	0.00	58.1	ug/L	2.11	116	(0%-20%)		02/03/15	16:24
Acrolein	250	U	0.00	269	ug/L	1.47	107	(0%-20%)			
Acrylonitrile	250	U	0.00	208	ug/L	4.17	83.2	(0%-20%)			
Allyl chloride	250	U	0.00	237	ug/L	1.91	94.8	(0%-20%)			
Ethyl methacrylate	250	U	0.00	229	ug/L	3.46	91.4	(0%-20%)			
Isobutyl alcohol	2500	U	0.00	2380	ug/L	5.06	95.4	(0%-20%)			
Methacrylonitrile	250	U	0.00	229	ug/L	3.89	91.8	(0%-20%)			
trans-1,4-Dichloro-2-butene	250	U	0.00	219	ug/L	3.96	87.8	(0%-20%)			
**1,2-Dichloroethane-d4	50.0		51.8	52.6	ug/L		105	(77%-123%)			
**Bromofluorobenzene	50.0		52.3	51.4	ug/L		103	(80%-120%)			
**Toluene-d8	50.0		45.5	46.4	ug/L		92.8	(80%-120%)			

Notes:

The Qualifiers in this report are defined as follows:

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QC Summary

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
A	The TIC is a suspected aldol-condensation product										
B	The analyte was detected in both the associated QC blank and in the sample.										
C	Analyte has been confirmed by GC/MS analysis										
D	Results are reported from a diluted aliquot of sample.										
E	Concentration exceeds the calibration range of the instrument										
J	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate). Value is estimated										
N	Spike Sample recovery is outside control limits.										
P	Aroclor target analyte with greater than 25% difference between column analyses.										
T	Spike and/or spike duplicate 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										
o	Analyte failed to recover within LCS limits (Organics only)										

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. 04-FEB-15	Division: Federal	Quality Criteria: SOP	Type: Process
Instrument Type: VOA GC/MS	Test / Method: 8260C	Matrix Type: Liquid	Client Code: CPRC001
Batch ID: 1454890	Sample Numbers: See Below		

Potentially affected work order(s)(SDG): 366137(GEL366137),366158(GEL366158),366160(GEL366160),366192(X501331),366204(GEL366204),366206(GEL366206),366207(GEL366207)

Application Issues:

Failed Recovery for MS/MSD, or PS/PSD

Other

Failed Recovery for PS/PSD

Failed Recovery for LCS/LCSD

Specification and Requirements Exception Description:	DER Disposition:
<p>1. The percent drift for 2-Chloro-1,3-butadiene was outside of acceptance limits in the continuing calibration verification sample with high bias. The effected SDG's are GEL 366137, GEL366158, GEL366206.</p> <p>2. The recovery for 2-Chloro-1,3-butadiene was outside of acceptance limits in LCS 1203256973. The effected SDG's are GEL 366137, GEL366158, GEL366206.</p> <p>2-Chloro-1,3-butadiene 137% limits: 70-130%</p> <p>3. The recoveries for Acetone and 2-Butanone were outside of acceptance limits in the matrix spike and in the matrix spike duplicate performed on sample 366158001. The calculated relative percent differences between the MS and MSD were within acceptance limits for all client requested compounds.</p>	<p>1,2. Narrate and report data. The compound was not detected in the associated samples.</p> <p>3. Narrate and report data.</p>

Originator's Name:

Crystal Stacey 04-FEB-15

Data Validator/Group Leader:

Erin Haubert 04-FEB-15

Metals Analysis

Case Narrative

February 27, 2015

Metals

Technical Case Narrative

CH2MHill Plateau Remediation Company (CPRC)

SDG #: GEL366158

Work Order #: 366158

Sample ID	Client ID
366158003	B2YXL7
1203255312	Method Blank (MB)ICP
1203255313	Laboratory Control Sample (LCS)
1203255316	366137003(B30135L) Serial Dilution (SD)
1203255314	366137003(B30135S) Matrix Spike (MS)
1203255315	366137003(B30135SD) Matrix Spike Duplicate (MSD)

Sample Analysis

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

Method/Analysis Information

Analytical Batch:	1454332
Prep Batch :	1454331
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 CRDL/PQL standard recoveries met the referenced advisory control limits.

ICSA/ICSAB Statement

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

criteria.

Continuing Calibration Blanks (CCB) Requirements

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

Continuing Calibration Verification (CCV) Requirements

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

Quality Control (QC) Information

Method Blank (MB) Statement

The method blanks (MB) analyzed with this SDG met the acceptance criteria with the exception of chromium. The analyte concentration 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. 1203255312 (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: 366137003 (B30135).

Matrix Spike (MS/MSD) 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. The matrix spike met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes.

MS/MSD Relative Percent Difference (RPD) Statement

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

Serial Dilution % Difference Statement

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

Technical Information

Holding Time Specifications

GEL assigns holding times based on the associated methodology. Holding time is measured by comparison of the date and time of sample collection to the date and time of sample preparation and analysis. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

Sample Dilutions

The sample in this SDG did not require dilutions.

Preparation Information

The sample in this SDG was not diluted and prepared according to the cited SOP.

Miscellaneous Information

February 27, 2015

Electronic Packaging Comment

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

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

Data Exception (DER) Documentation

A data exception report was not required for this SDG.

Additional Comments

Additional comments were not required for this SDG.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

February 27, 2015

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**Qualifier Definition Report
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL366158 GEL Work Order: 366158

The Qualifiers in this report are defined as follows:

* Duplicate analysis not within control limits

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

D Results are reported from a diluted aliquot of sample.

N Spike Sample recovery is outside control limits.

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

Review/Validation

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

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

Signature: 

Name: Nik-Cole Elmore

Date: 26 FEB 2015

Title: Data Validator

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 I15-009**

Report Date: February 26, 2015

Client Sample ID:	B2YXL7	Project:	CPRC0115009
Sample ID:	366158003	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	29-JAN-15 11:37		
Receive Date:	30-JAN-15		
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	0.717	+/-1.18	3.50	10.0	ug/L	1	HSC	02/17/15	0950	1454332	1
Arsenic 7440-38-2	U	0.847	+/-1.68	5.00	30.0	ug/L	1					
Barium 7440-39-3		66.0	+/-13.2	1.00	5.00	ug/L	1					
Cadmium 7440-43-9	U	0.158	+/-0.335	1.00	5.00	ug/L	1					
Calcium 7440-70-2		95400	+/-19100	50.0	200	ug/L	1					
Chromium 7440-47-3		146	+/-29.2	1.00	5.00	ug/L	1					
Cobalt 7440-48-4	B	1.01	+/-0.390	1.00	5.00	ug/L	1					
Copper 7440-50-8		15.8	+/-3.31	3.00	10.0	ug/L	1					
Iron 7439-89-6		449	+/-90.4	30.0	100	ug/L	1					
Magnesium 7439-95-4		34800	+/-6960	110	300	ug/L	1					
Manganese 7439-96-5		13.6	+/-2.81	2.00	10.0	ug/L	1					
Nickel 7440-02-0		20.3	+/-4.10	1.50	5.00	ug/L	1					
Potassium 7440-09-7		5910	+/-1180	50.0	150	ug/L	1					
Silver 7440-22-4	U	-0.425	+/-0.344	1.00	5.00	ug/L	1					
Sodium 7440-23-5		17500	+/-3490	100	300	ug/L	1					
Vanadium 7440-62-2		19.2	+/-3.86	1.00	5.00	ug/L	1					
Zinc 7440-66-6	U	-0.808	+/-1.11	3.30	10.0	ug/L	1					

Quality Control Summary

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QC Summary

Report Date: February 26, 2015

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CH2MHill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 366158

<u>Parmname</u>	<u>NOM</u>	<u>Sample</u>	<u>Qual</u>	<u>QC</u>	<u>Units</u>	<u>RPD/D%</u>	<u>REC%</u>	<u>Range</u>	<u>Anlst</u>	<u>Date</u>	<u>Time</u>
Metals Analysis-ICP											
Batch	1454332										
QC1203255313	LCS										
Antimony	500			522	ug/L		104	(80%-120%)	HSC	02/17/15	09:23
Arsenic	500			517	ug/L		103	(80%-120%)			
Barium	500			514	ug/L		103	(80%-120%)			
Cadmium	500			505	ug/L		101	(80%-120%)			
Calcium	5000			5110	ug/L		102	(80%-120%)			
Chromium	500			509	ug/L		102	(80%-120%)			
Cobalt	500			523	ug/L		105	(80%-120%)			
Copper	500			514	ug/L		103	(80%-120%)			
Iron	5000			5090	ug/L		102	(80%-120%)			
Magnesium	5000			5140	ug/L		103	(80%-120%)			
Manganese	500			510	ug/L		102	(80%-120%)			
Nickel	500			516	ug/L		103	(80%-120%)			
Potassium	5000			5030	ug/L		101	(80%-120%)			
Silver	500			503	ug/L		101	(80%-120%)			
Sodium	5000			5060	ug/L		101	(80%-120%)			
Vanadium	500			527	ug/L		105	(80%-120%)			
Zinc	500			509	ug/L		102	(80%-120%)			
QC1203255312	MB										
Antimony			U	ND	ug/L					02/17/15	09:20
Arsenic			U	ND	ug/L						

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QC Summary

Workorder: **366158**

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1454332										
Barium			U	ND	ug/L						
Cadmium			U	ND	ug/L				HSC	02/17/15	09:20
Calcium			U	ND	ug/L						
Chromium			B	1.25	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						
Vanadium			U	ND	ug/L						
Zinc			U	ND	ug/L						
QC1203255314 366137003 MS											
Antimony	500	U	ND	536	ug/L		107	(75%-125%)		02/17/15	09:29
Arsenic	500	B	6.18	533	ug/L		105	(75%-125%)			
Barium	500		58.2	570	ug/L		102	(75%-125%)			
Cadmium	500	U	ND	500	ug/L		100	(75%-125%)			
Calcium	5000		73500	79400	ug/L		N/A	(75%-125%)			
Chromium	500	BC	3.70	514	ug/L		102	(75%-125%)			
Cobalt	500	U	ND	508	ug/L		101	(75%-125%)			

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QC Summary

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1454332										
Copper	500	B	9.18	532	ug/L		105	(75%-125%)	HSC	02/17/15	09:29
Iron	5000	B	32.5	5090	ug/L		101	(75%-125%)			
Magnesium	5000		18700	23700	ug/L		98.9	(75%-125%)			
Manganese	500	U	ND	503	ug/L		100	(75%-125%)			
Nickel	500	U	ND	497	ug/L		99.4	(75%-125%)			
Potassium	5000		5900	11300	ug/L		108	(75%-125%)			
Silver	500	U	ND	511	ug/L		102	(75%-125%)			
Sodium	5000		15400	20600	ug/L		104	(75%-125%)			
Vanadium	500		14.6	549	ug/L		107	(75%-125%)			
Zinc	500		17.7	498	ug/L		96	(75%-125%)			
QC1203255315 366137003 MSD											
Antimony	500	U	ND	536	ug/L	0.0467	107	(0%-20%)		02/17/15	09:31
Arsenic	500	B	6.18	538	ug/L	0.902	106	(0%-20%)			
Barium	500		58.2	575	ug/L	0.716	103	(0%-20%)			
Cadmium	500	U	ND	503	ug/L	0.568	101	(0%-20%)			
Calcium	5000		73500	78900	ug/L	0.729	N/A	(0%-20%)			
Chromium	500	BC	3.70	513	ug/L	0.175	102	(0%-20%)			
Cobalt	500	U	ND	514	ug/L	1.17	103	(0%-20%)			
Copper	500	B	9.18	534	ug/L	0.444	105	(0%-20%)			
Iron	5000	B	32.5	5060	ug/L	0.510	101	(0%-20%)			
Magnesium	5000		18700	23500	ug/L	0.585	96.1	(0%-20%)			
Manganese	500	U	ND	504	ug/L	0.226	101	(0%-20%)			

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Parname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1454332										
Nickel	500	U	ND	503	ug/L	1.21	101	(0%-20%)	HSC	02/17/15	09:31
Potassium	5000		5900	11200	ug/L	1.00	106	(0%-20%)			
Silver	500	U	ND	513	ug/L	0.359	103	(0%-20%)			
Sodium	5000		15400	20300	ug/L	1.42	97.8	(0%-20%)			
Vanadium	500		14.6	549	ug/L	0.0565	107	(0%-20%)			
Zinc	500		17.7	503	ug/L	0.995	97	(0%-20%)			
QC1203255316 366137003 SDILT											
Antimony		U	ND DU	ND	ug/L	N/A		(0%-10%)		02/17/15	09:33
Arsenic		B	6.18 DU	ND	ug/L	N/A		(0%-10%)			
Barium			58.2 D	11.6	ug/L	.012		(0%-10%)			
Cadmium		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Calcium			73500 D	14500	ug/L	1		(0%-10%)			
Chromium		BC	3.70 DU	ND	ug/L	N/A		(0%-10%)			
Cobalt		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Copper		B	9.18 DU	ND	ug/L	N/A		(0%-10%)			
Iron		B	32.5 DU	ND	ug/L	N/A		(0%-10%)			
Magnesium			18700 D	3800	ug/L	1.54		(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			5900 D	1130	ug/L	4.41		(0%-10%)			
Silver		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Sodium			15400 D	3030	ug/L	1.75		(0%-10%)			

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1454332										
Vanadium		14.6	D	3.24	ug/L	11.1		(0%-10%)	HSC	02/17/15	09:33
Zinc		17.7	D	4.53	ug/L	27.9		(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
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL366158
Work Order #: 366158**

Method/Analysis Information

Product: Carbon and Total Organic

Analytical Batch: 1454360

Method: 9060_TOC: COMMON

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060A:

Sample ID	Client ID
366158003	B2YXL7
1203255395	Method Blank (MB)
1203255396	Laboratory Control Sample (LCS)
1203255398	366158003(B2YXL7) Sample Duplicate (DUP)
1203255400	366158003(B2YXL7) 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-093 REV# 12.

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 Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

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.

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

Sample366158003 (B2YXL7) was selected for QC analysis.

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

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

Duplicate Relative Percent Difference (RPD) Statement

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

Technical Information

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

Holding Times

All samples in this SDG met the specified holding time.

Sample Preservation/Integrity

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

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-analysis

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

Miscellaneous Information

Data Exception (DER) Documentation

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

Additional Comments

A 15 mg/L Total Inorganic Carbon check standard is analyzed with each analytical run to prove that the instrument is effectively sparging away the inorganic carbon.

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

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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: Solids and Total Dissolved
Analytical Batch: 1454677 **Method:** 160.1_TDS:COMMON

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
366158003	B2YXL7
1203256216	Method Blank (MB)
1203256217	Laboratory Control Sample (LCS)
1203256220	366158003(B2YXL7) 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-GC-E-001 REV# 15.

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 Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration

All initial calibration requirements have been met for this SDG.

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

Sample366158003 (B2YXL7) was selected for QC analysis.

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.

Sample Aliquot

A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation

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

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

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

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

Method/Analysis Information

Product: Sulfide and Total
Analytical Batch: 1455011 **Method:** 4500_Sulfide: COMMON

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SM 4500-S (2-) D:

Sample ID	Client ID
366158003	B2YXL7
1203257216	Method Blank (MB)
1203257217	Laboratory Control Sample (LCS)
1203257220	366158003(B2YXL7) Sample Duplicate (DUP)
1203257221	366158003(B2YXL7) Post Spike (PS)

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

SOP Reference

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

Preparation/Analytical Method Verification

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

Calibration Information

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

Initial Calibration

All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks

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

Calibration Verification Information (CCV)

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

Y Intercept Rule

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

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Sample366158003 (B2YXL7) was selected for QC analysis.

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

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

Duplicate Relative Percent Difference (RPD) Statement

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

Technical Information

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

Holding Times

All samples in this SDG met the specified holding time.

Sample Preservation/Integrity

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

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-analysis

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

Miscellaneous Information

Data Exception (DER) Documentation

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

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

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

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

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scanned and inserted into the electronic package.

Method/Analysis Information

Product: Alkalinity
Analytical Batch: 1456716 **Method:** 2320_ALKALINITY: GW 01

Sample Analysis

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

Sample ID	Client ID
366158003	B2YXL7
1203261913	Method Blank (MB)
1203261915	Laboratory Control Sample (LCS)
1203261917	366158003(B2YXL7) Sample Duplicate (DUP)
1203261919	366158003(B2YXL7) 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

Sample 366158003 (B2YXL7) was selected for QC analysis.

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

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

Duplicate Relative Percent Difference (RPD) Statement

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

Technical Information

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

Holding Times

All samples in this SDG met the specified holding time.

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-analysis

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

Miscellaneous Information

Data Exception (DER) Documentation

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

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

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

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

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

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**Qualifier Definition Report
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL366158 GEL Work Order: 366158

The Qualifiers in this report are defined as follows:

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

Review/Validation

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

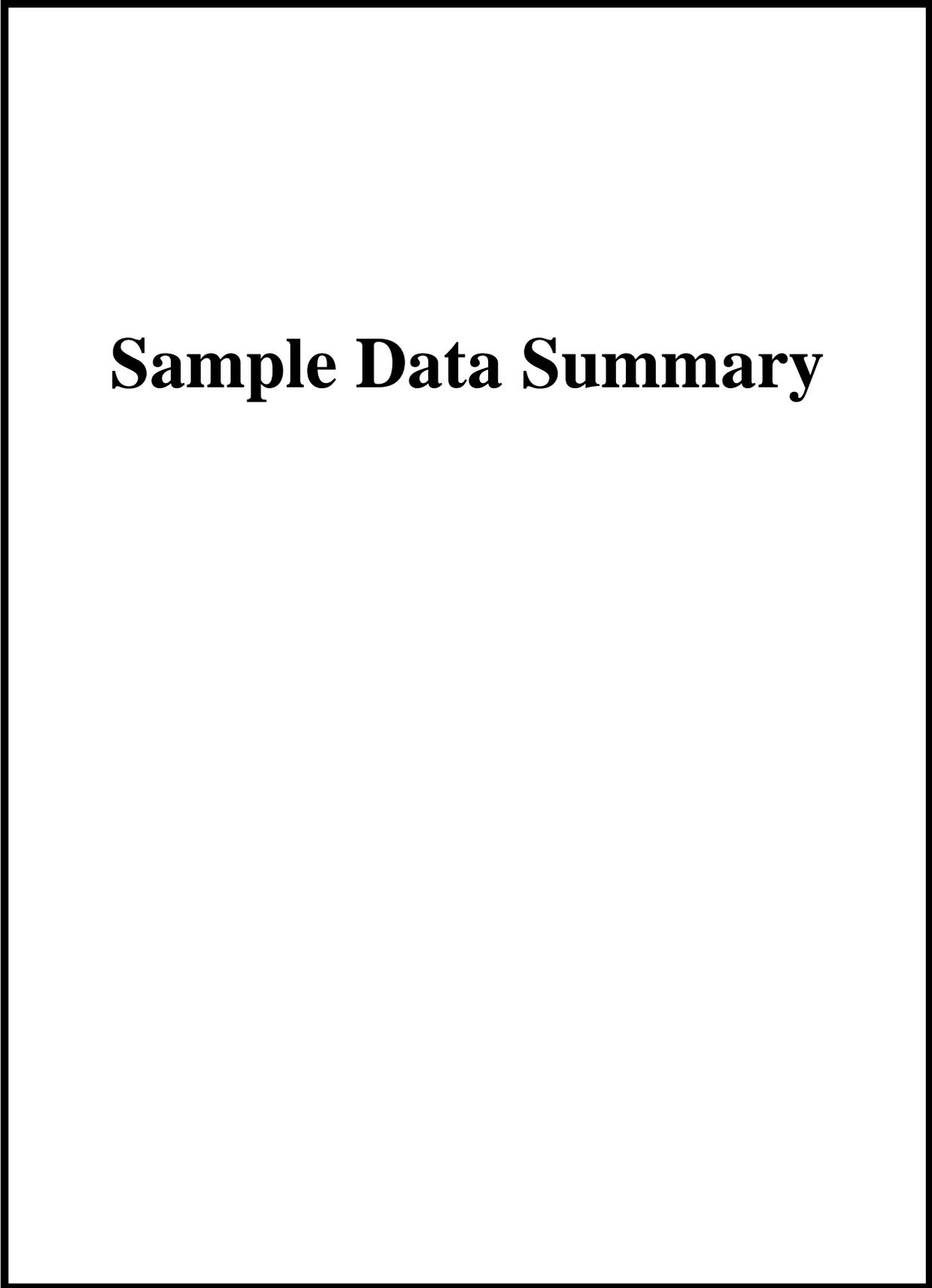
The following data validator verified the information presented in this data report:

Signature: 

Name: Thomas Lewis

Date: 25 FEB 2015

Title: Data Validator



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 I15-009**

Report Date: February 25, 2015

Client Sample ID:	B2YXL7	Project:	CPRC0115009
Sample ID:	366158003	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	29-JAN-15 11:37		
Receive Date:	30-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
<i>9060_TOC: COMMON "As Received"</i>											
Total Organic Carbon #1	U	261	330	1000	ug/L	1	TSM	02/03/15	0018	1454360	1
Total Organic Carbon #2	U	287	330	1000	ug/L	1					
Total Organic Carbon #3	U	236	330	1000	ug/L	1					
Total Organic Carbon #4	U	293	330	1000	ug/L	1					
Total Organic Carbon Average	U	269	330	1000	ug/L	1					
Solids Analysis											
<i>160.1_TDS: COMMON "As Received"</i>											
Total Dissolved Solids		609000	3400	14300	ug/L			MXB302/03/15	1455	1454677	2
Spectrometric Analysis											
<i>4500_Sulfide: COMMON "As Received"</i>											
Total Sulfide	U	-13.3	33.0	500	ug/L	1	SXC5	02/04/15	1009	1455011	3
Titration and Ion Analysis											
<i>2320_ALKALINITY: GW 01 "As Received"</i>											
Alkalinity, Total as CaCO3		76300	725	1000	ug/L		PXO1	02/10/15	1927	1456716	4
ALKALINITY											
Bicarbonate alkalinity (CaCO3)		76300	725	1000	ug/L						
71-52-3											
Carbonate alkalinity (CaCO3)	U	0.00	725	1000	ug/L						
CO3ALKALINITY											
Hydroxide alkalinity as CaCO3	U	0.00	725	1000	ug/L						
84625-61-6											

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060A	
2	EPA 160.1	

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Report Date: February 25, 2015

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CH2MHill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 366158

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Carbon Analysis											
Batch	1454360										
QC1203255398	366158003	DUP									
Total Organic Carbon Average		U	330	U	330	ug/L	N/A		TSM	02/03/15	00:52
QC1203255396	LCS										
Total Organic Carbon Average	10000				9890	ug/L	98.9	(85%-115%)		02/02/15	17:23
QC1203255395	MB										
Total Organic Carbon Average			U		330	ug/L				02/02/15	17:14
QC1203255400	366158003	PS									
Total Organic Carbon Average	10.0	U	0.269		9.90	mg/L	96.3	(65%-120%)		02/03/15	01:11
Solids Analysis											
Batch	1454677										
QC1203256220	366158003	DUP									
Total Dissolved Solids			609000		569000	ug/L	6.80	(0%-10%)	MXB3	02/03/15	14:55
QC1203256217	LCS										
Total Dissolved Solids	300000				293000	ug/L	97.6	(95%-105%)		02/03/15	14:55
QC1203256216	MB										
Total Dissolved Solids			U		3400	ug/L				02/03/15	14:55
Spectrometric Analysis											
Batch	1455011										
QC1203257220	366158003	DUP									
Total Sulfide		U	33.0	U	33.0	ug/L	N/A		SXC5	02/04/15	10:10
QC1203257217	LCS										
Total Sulfide	400				410	ug/L	102	(80%-120%)		02/04/15	10:07
QC1203257216	MB										
Total Sulfide			U		33.0	ug/L				02/04/15	10:07
QC1203257221	366158003	PS									
Total Sulfide	0.400	U	-0.0133		0.356	mg/L	88.9	(29%-142%)		02/04/15	10:10
Titration and Ion Analysis											
Batch	1456716										
QC1203261917	366158003	DUP									
Alkalinity, Total as CaCO3			76300		76300	ug/L	0.00	(0%-20%)	PXO1	02/10/15	19:29

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Titration and Ion Analysis											
Batch	1456716										
Bicarbonate alkalinity (CaCO3)		76300		76300	ug/L	0.00		(0%-20%)			
Carbonate alkalinity (CaCO3)	U	725	U	725	ug/L	N/A			PX01	02/10/15	19:29
Hydroxide alkalinity as CaCO3	U	725	U	725	ug/L	N/A					
QC1203261915 LCS											
Alkalinity, Total as CaCO3	50000			48100	ug/L		96.2	(90%-110%)		02/10/15	18:41
QC1203261913 MB											
Alkalinity, Total as CaCO3			U	725	ug/L					02/10/15	18:41
Bicarbonate alkalinity (CaCO3)			U	725	ug/L						
Carbonate alkalinity (CaCO3)			U	725	ug/L						
Hydroxide alkalinity as CaCO3			U	725	ug/L						
QC1203261919 366158003 MS											
Alkalinity, Total as CaCO3	50000	76300		124000	ug/L		96.2	(80%-120%)		02/10/15	19:31

Notes:

The Qualifiers in this report are defined as follows:

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

February 27, 2015

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QC Summary

Workorder: 366158

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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.