

February 20, 2015



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

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www.gel.com

February 16, 2015

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

Re: CHPRC SAF X15-007
Work Order: 365663
SDG: GEL365663

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on January 23, 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: 300071ES20 - 7H
Chain of Custody: X15-007-030 and X15-007-031
Enclosures



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Case Narrative

February 20, 2015

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF X15-007
SDG: GEL365663

February 16, 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 23, 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
365663001	B2Y665
365663002	B2Y664

Case Narrative

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

Data Package

The enclosed data package contains the following sections: General Narrative, Chain of Custody and Supporting Documentation, and data from the following fractions: Diesel Range Organics, GC Volatiles (GRO), GC/MS Semivolatile, 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 Manager (or designee) and the laboratory's client services representative as verified by their signatures on this report.

February 20, 2015
Heather Shaffer

Heather Shaffer
Project Manager

Chain of Custody and Supporting Documentation

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#
X15-007-031

Page 1 of 1

Collector	CHRIS FULTON CHPRC	Contact/Requester	WATERS-HUSTED, K	Telephone No.	376-4650
SAF No.	X15-007	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071ES20
Project Title	100-N GW Sample Collection Supporting	Logbook No.	HNF-N-506 70/19	Ice Chest No.	GWS-434
Shipped To (Lab)	GEL Laboratories, LLC	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	772674316298
Protocol	CERCLA	Priority:	30 Days	Offsite Property No.	5358

POSSIBLE SAMPLE HAZARDS/REMARKS

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

SPECIAL INSTRUCTIONS

** The field NCOs prior to purging the well for sample collection, will use a transparent bailer to collect a grab sample to evaluate the presence of an oil sheen. They are to record their observations, along with any odors observed on the Field Sampling Report provided.

Total Activity Exemption: Yes No

Sample No.	Filter	* Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B2Y665	N	1/21/15	1329	1x250-mL G/P	9056_ANIONS_IC: COMMON; 9056_ANIONS_IC: GW 02	28 Days/48 Hours	Cool <=6C

Relinquished By	CHRIS FULTON CHPRC	Print	Sign	Received By	SSU-1	Date/Time	1/22/15	Matrix *	S = Soil	DS = Drum Solids
Relinquished By	SSU-1	Print	Sign	Received By	R.A. Shepard/CHPRC	Date/Time	JAN 21 2015 1400	SE = Sediment	DL = Drum Liquids	
Relinquished By	R.A. Shepard/CHPRC	Print	Sign	Received By	FEDEX	Date/Time	JAN 22 2015 1000	SO = Solid	T = Tissue	
Relinquished By	FEDEX	Print	Sign	Received By	M. Kinslow	Date/Time	JAN 22 2015 1400	SL = Sludge	WI = Wipe	
Relinquished By	FEDEX	Print	Sign	Received By	M. Kinslow	Date/Time	JAN 23 2015 0855	W = Water	L = Liquid	
Relinquished By	FEDEX	Print	Sign	Received By	M. Kinslow	Date/Time	JAN 23 2015 0855	O = Oil	V = Vegetation	
Relinquished By	FEDEX	Print	Sign	Received By	M. Kinslow	Date/Time	JAN 23 2015 0855	A = Air	X = Other	

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

FINAL SAMPLE DISPOSITION

February 20, 2015

#50

February 20, 2015

CH2M Hill Plateau Remediation Company
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
 C.O.C.# **X15-007-030**
 Page 1 of 1

Collector: **CHRIS FULTON CHPRC**
 Contact/Requester: **WATERS-HUSTED, K**
 Telephone No.: **376-4650**
 Sampling Origin: **Hanford Site**
 Purchase Order/Charge Code: **300071ES20**
 Project Title: **100-N GW Sample Collection Supporting**
 Logbook No.: **HNF-N-506 70/19**
 Shipped To (Lab): **GEL Laboratories, LLC**
 Method of Shipment: **Commercial Carrier**
 Protocol: **CERCLA**
 Priority: **30 Days**
 Priority: **PRIORITY**
 Bill of Lading/Air Bill No.: **772674316298**
 Ice Chest No.: **6WS-424**
 Offsite Property No.: **5358**

POSSIBLE SAMPLE HAZARDS/REMARKS
 *Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.
SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes No
 ** The field NCOs prior to purging the well for sample collection, will use a transparent bailer to collect a grab sample to evaluate the presence of an oil sheen. They are to record their observations, along with any odors observed on the Field Sampling Report provided.

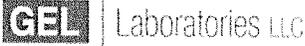
Sample No.	Filter	* Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B2Y664	N	1/21/15	1329	2x1-L G	1664A_OILGREASE: COMMON	28 Days	HCl to pH <2/Cool <=6C
B2Y664	N			3x1-L aG	WTPH_DIESEL: COMMON	14/40 Days	HCl to pH <2/Cool <=6C
B2Y664	N			4x40-mL aGs*	WTPH_GASOLINE: COMMON	14 Days	HCl to pH <2/Cool <=6C
B2Y664	N			3x1-L aG	WTPH_MOTOR OIL: COMMON	14/40 Days	HCl to pH <2/Cool <=6C
B2Y664	N			1x500-mL G/P	6020_METALS_ICPMS: GW 01; 6010_METALS_ICP: GW 07 (BIOREM)	6 Months	HNO3 to pH <2
B2Y664	N			4x1-L aG	8270_SVOA_GCMS_SIM: COMMON	7/40 Days	Cool <=6C
B2Y664	N			4x40-mL aGs*	8260_VOA_GCMS: COMMON	14 Days	HCl or H2SO4 to pH <2/Cool <=6C
B2Y664	N			1x250-mL G/P	2320_ALKALINITY: COMMON	14 Days	Cool <=6C

AIR IN VOAS DUE TO HYDRO STAR PUMP.

Relinquished By CHRIS FULTON CHPRC	Print 	Sign 	Received By SSU-1	Print 	Sign 	Date/Time JAN 21 2015 1424	Date/Time JAN 21 2015 1424	Matrix * S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
Relinquished By SSU-1	Print 	Sign 	Received By RA. Shepard/CHPRC	Print 	Sign 	Date/Time JAN 22 2015 1000	Date/Time JAN 22 2015 1000	
Relinquished By RA. Shepard/CHPRC	Print 	Sign 	Received By FEDEX	Print 	Sign 	Date/Time JAN 22 2015 1400	Date/Time JAN 22 2015 1400	
Relinquished By FEDEX	Print 	Sign 	Received By M. Knowlton	Print 	Sign 	Date/Time 1-23-15 0855	Date/Time 1-23-15 0855	

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

February 20, 2015



SAMPLE RECEIPT & REVIEW FORM

Client: <u>CPRC</u>		SDG/AR/COC/Work Order: <u>3051063</u>
Received By: <u>MK</u>		Date Received: <u>1-23-15</u>
Suspected Hazard Information	Yes	No
COC/Samples marked as radioactive?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Classified Radioactive II or III by RSO?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
COC/Samples marked containing PCBs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Package, COC, and/or Samples marked as beryllium or asbestos containing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Shipped as a DOT Hazardous?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Samples identified as Foreign Soil?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
 Maximum Net Counts Observed* (Observed Counts - Area Background Counts): cpm 0
 If yes, Were swipes taken of sample containers < action levels?
 If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
 Hazard Class Shipped: UN#:

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: <u>ice bags</u> Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius
2a Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>130532776</u> Secondary Temperature Device Serial # (If Applicable):
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6 VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
7 Are Encore containers present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
8 Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
12 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14 Carrier and tracking number.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: <u>FedEx Air</u> FedEx Ground UPS Field Services Courier Other <u>7726 7431 6298 2.2c</u> <u>7726 7862 7910 2.3c</u> <u>7726 7862 7759 1.9c</u>

Comments (Use Continuation Form if needed):

Data Review Qualifier Definitions

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

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

Project Specific Qualifier Definitions for GEL Client Code: CPRC

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

Laboratory Certifications

List of current GEL Certifications as of 16 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 20, 2015
GC/MS Volatile
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL365663
Work Order #: 365663

Method/Analysis Information

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

Analytical Method: SW846 8260C

Analytical Batch Number: 1452976

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
365663002	B2Y664
1203251575	Method Blank (MB)
1203251576	Laboratory Control Sample (LCS)
1203251578	365749002(B30188) Post Spike (PS)
1203251579	365749002(B30188) Post Spike Duplicate (PSD)
1203254660	Method Blank (MB)
1203254661	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).

February 20, 2015

Continuing Calibration Verification Requirements

All associated calibration verification standard(s) (CCV) met the acceptance criteria.

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 spike recoveries met the acceptance limits.

QC Sample Designation

Sample 365749002 (B30188) was designated for spike analysis.

Matrix Spike/Matrix Spike Duplicate Recovery Statement

The spike and/or spike duplicate 1203251578 (Non SDG 365749002PS) and 1203251579 (Non SDG 365749002PSD) recoveries were not all within the acceptance limits.

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 samples 365663002 (B2Y664) was above 2 at the time of analysis. The samples were analyzed within 7 days from collection.

Sample Dilutions/Methanol Dilutions

The samples in this SDG did not require dilutions.

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

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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

The following DER was generated for this SDG: 1377629.

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 20, 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: GEL365663 GEL Work Order: 365663

The Qualifiers in this report are defined as follows:

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.

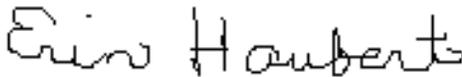
RA Indicates that sample is re-analyzed without re-extraction.

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.

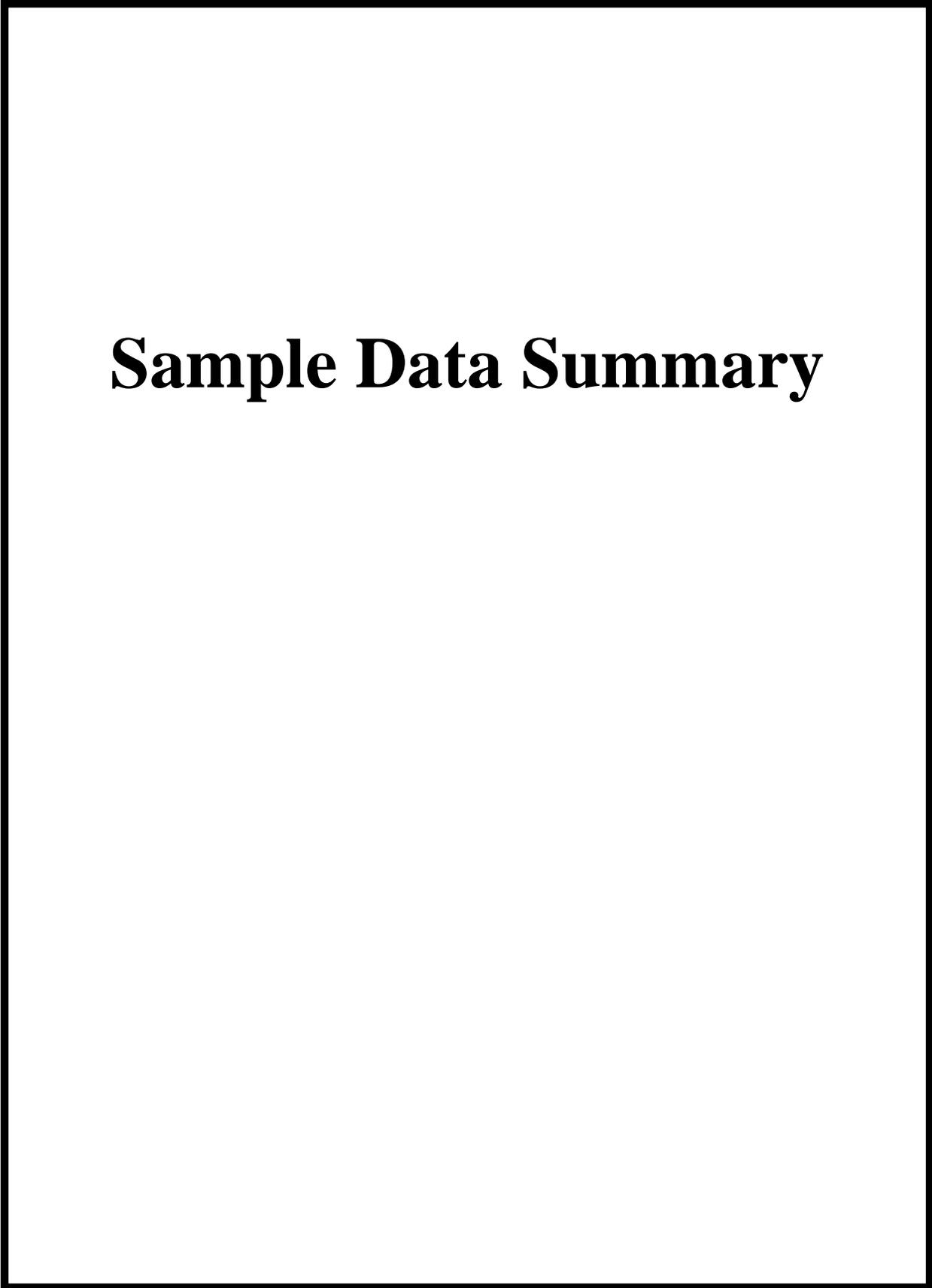
The following data validator verified the information presented in this data report:

Signature: 

Name: Erin Haubert

Date: 19 FEB 2015

Title: Data Validator



Sample Data Summary

~~February 20, 2015~~
GEL LABORATORIES LLC

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

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 X15-007**

Report Date: February 18, 2015

Client Sample ID:	B2Y664	Project:	CPRC0X15007
Sample ID:	365663002	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	21-JAN-15 13:29		
Receive Date:	23-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatile Organics										
<i>8260VOA_GCMS: COMMON "As Received"</i>										
1,1,1-Trichloroethane 71-55-6	U	0.00	0.300	5.00	ug/L	1	CDS1 01/27/15	1238	1452976	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-Dichloroethane 107-06-2	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				
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				
Benzene 71-43-2	U	0.00	0.300	5.00	ug/L	1				
Carbon disulfide 75-15-0	U	0.00	1.60	10.0	ug/L	1				
Carbon tetrachloride 56-23-5	U	0.00	0.300	5.00	ug/L	1				
Chlorobenzene 108-90-7	U	0.00	0.300	5.00	ug/L	1				
Chloroform 67-66-3	J	0.920	0.300	5.00	ug/L	1				
Ethylbenzene 100-41-4	U	0.00	0.300	5.00	ug/L	1				
Methylene chloride 75-09-2	U	0.00	1.60	5.00	ug/L	1				
Tetrachloroethylene 127-18-4	J	0.330	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				

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 X15-007**

Report Date: February 18, 2015

Client Sample ID: B2Y664 Project: CPRC0X15007
 Sample ID: 365663002 Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics											
<i>8260VOA_GCMS: COMMON "As Received"</i>											
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					

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	8260VOA_GCMS: COMMON "As Received"	51.2 ug/L	50.0	102	(77%-123%)
Bromofluorobenzene	8260VOA_GCMS: COMMON "As Received"	51.9 ug/L	50.0	104	(80%-120%)
Toluene-d8	8260VOA_GCMS: COMMON "As Received"	46.7 ug/L	50.0	93.4	(80%-120%)

Quality Control Summary

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QC Summary

Report Date: February 18, 2015

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CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 365663

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1452976										
QC1203251576	LCS										
1,1,1-Trichloroethane	50.0			58.5	ug/L		117	(70%-130%)	CDS1	01/27/15	07:04
1,1,2-Trichloroethane	50.0			50.6	ug/L		101	(70%-130%)			
1,1-Dichloroethane	50.0			55.1	ug/L		110	(70%-130%)			
1,1-Dichloroethylene	50.0			55.3	ug/L		111	(70%-130%)			
1,2-Dichloroethane	50.0			52.0	ug/L		104	(70%-130%)			
2-Butanone	250			257	ug/L		103	(70%-130%)			
4-Methyl-2-pentanone	250			250	ug/L		100	(70%-130%)			
Acetone	250			265	ug/L		106	(70%-130%)			
Benzene	50.0			54.2	ug/L		108	(70%-130%)			
Carbon disulfide	250			282	ug/L		113	(70%-130%)			
Carbon tetrachloride	50.0			58.8	ug/L		118	(70%-130%)			
Chlorobenzene	50.0			52.8	ug/L		106	(70%-130%)			
Chloroform	50.0			54.5	ug/L		109	(70%-130%)			
Ethylbenzene	50.0			55.9	ug/L		112	(70%-130%)			
Methylene chloride	50.0			48.3	ug/L		96.6	(70%-130%)			
Tetrachloroethylene	50.0			54.1	ug/L		108	(70%-130%)			
Toluene	50.0			52.8	ug/L		106	(70%-130%)			
Trichloroethylene	50.0			55.4	ug/L		111	(70%-130%)			
Vinyl chloride	50.0			46.6	ug/L		93.2	(70%-130%)			
Xylenes (total)	150			166	ug/L		111	(70%-130%)			

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QC Summary

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1452976										
**1,2-Dichloroethane-d4	50.0			50.5	ug/L		101	(77%-123%)	CDS1	01/27/15	07:04
**Bromofluorobenzene	50.0			49.3	ug/L		98.7	(80%-120%)			
**Toluene-d8	50.0			49.0	ug/L		98.1	(80%-120%)			
QC1203254661	LCS										
1,1,1-Trichloroethane	50.0			49.2	ug/L		98.5	(70%-130%)		01/28/15	09:29
1,1,2-Trichloroethane	50.0			48.1	ug/L		96.3	(70%-130%)			
1,1-Dichloroethane	50.0			44.7	ug/L		89.4	(70%-130%)			
1,1-Dichloroethylene	50.0			43.5	ug/L		86.9	(70%-130%)			
1,2-Dichloroethane	50.0			50.0	ug/L		100	(70%-130%)			
2-Butanone	250			267	ug/L		107	(70%-130%)			
4-Methyl-2-pentanone	250			249	ug/L		99.5	(70%-130%)			
Acetone	250			281	ug/L		112	(70%-130%)			
Benzene	50.0			44.0	ug/L		88	(70%-130%)			
Carbon disulfide	250			220	ug/L		87.8	(70%-130%)			
Carbon tetrachloride	50.0			48.7	ug/L		97.3	(70%-130%)			
Chlorobenzene	50.0			45.3	ug/L		90.5	(70%-130%)			
Chloroform	50.0			47.0	ug/L		94	(70%-130%)			
Ethylbenzene	50.0			46.0	ug/L		92	(70%-130%)			
Methylene chloride	50.0			41.8	ug/L		83.6	(70%-130%)			
Tetrachloroethylene	50.0			43.7	ug/L		87.5	(70%-130%)			
Toluene	50.0			42.5	ug/L		85.1	(70%-130%)			
Trichloroethylene	50.0			45.2	ug/L		90.5	(70%-130%)			

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1452976										
Vinyl chloride	50.0			46.2	ug/L		92.4	(70%-130%)	CDS1	01/28/15	09:29
Xylenes (total)	150			139	ug/L		92.4	(70%-130%)			
**1,2-Dichloroethane-d4	50.0			51.2	ug/L		102	(77%-123%)			
**Bromofluorobenzene	50.0			49.7	ug/L		99.4	(80%-120%)			
**Toluene-d8	50.0			47.6	ug/L		95.1	(80%-120%)			
QC1203251575	MB										
1,1,1-Trichloroethane			U	0.300	ug/L					01/27/15	08:08
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-Dichloroethane			U	0.300	ug/L						
2-Butanone			U	3.00	ug/L						
4-Methyl-2-pentanone			U	3.00	ug/L						
Acetone			U	3.00	ug/L						
Benzene			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						
Chloroform			U	0.300	ug/L						
Ethylbenzene			U	0.300	ug/L						
Methylene chloride			U	1.60	ug/L						
Tetrachloroethylene			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	1452976										
Toluene			U	0.300	ug/L				CDS1	01/27/15	08:08
Trichloroethylene			U	0.300	ug/L						
Vinyl chloride			U	0.300	ug/L						
Xylenes (total)			U	0.300	ug/L						
**1,2-Dichloroethane-d4	50.0			50.0	ug/L		99.9	(77%-123%)			
**Bromofluorobenzene	50.0			51.9	ug/L		104	(80%-120%)			
**Toluene-d8	50.0			47.0	ug/L		94	(80%-120%)			
QC1203254660 MB											
1,1,1-Trichloroethane			U	0.300	ug/L					01/28/15	10:28
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-Dichloroethane			U	0.300	ug/L						
2-Butanone			U	3.00	ug/L						
4-Methyl-2-pentanone			U	3.00	ug/L						
Acetone			U	3.00	ug/L						
Benzene			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						
Chloroform			U	0.300	ug/L						
Ethylbenzene			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	1452976										
Methylene chloride			U	1.60	ug/L				CDS1	01/28/15	10:28
Tetrachloroethylene			U	0.300	ug/L						
Toluene			U	0.300	ug/L						
Trichloroethylene			U	0.300	ug/L						
Vinyl chloride			U	0.300	ug/L						
Xylenes (total)			U	0.300	ug/L						
**1,2-Dichloroethane-d4	50.0			51.0	ug/L		102	(77%-123%)			
**Bromofluorobenzene	50.0			52.9	ug/L		106	(80%-120%)			
**Toluene-d8	50.0			46.6	ug/L		93.3	(80%-120%)			
QC1203251578 365749002 PS											
1,1,1-Trichloroethane	50.0	U	0.00	59.1	ug/L		118	(70%-130%)		01/28/15	13:58
1,1,2-Trichloroethane	50.0	U	0.00	51.0	ug/L		102	(70%-130%)			
1,1-Dichloroethane	50.0	U	0.00	55.0	ug/L		110	(70%-130%)			
1,1-Dichloroethylene	50.0	U	0.00	56.8	ug/L		114	(70%-130%)			
1,2-Dichloroethane	50.0	U	0.00	53.0	ug/L		106	(70%-130%)			
2-Butanone	250	TU	0.00 T	153	ug/L		61.3 *	(70%-130%)			
4-Methyl-2-pentanone	250	U	0.00	232	ug/L		92.7	(70%-130%)			
Acetone	250	TU	0.00 T	107	ug/L		42.9 *	(70%-130%)			
Benzene	50.0	U	0.00	54.5	ug/L		109	(70%-130%)			
Carbon disulfide	250	U	0.00	291	ug/L		116	(70%-130%)			
Carbon tetrachloride	50.0	U	0.00	60.5	ug/L		121	(70%-130%)			
Chlorobenzene	50.0	U	0.00	54.1	ug/L		108	(70%-130%)			

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1452976										
Chloroform	50.0	U	0.00	54.4	ug/L		109	(70%-130%)	CDS1	01/28/15	13:58
Ethylbenzene	50.0	U	0.00	57.4	ug/L		115	(70%-130%)			
Methylene chloride	50.0	J	4.18	51.2	ug/L		94	(70%-130%)			
Tetrachloroethylene	50.0	U	0.00	55.0	ug/L		110	(70%-130%)			
Toluene	50.0	U	0.00	52.6	ug/L		105	(70%-130%)			
Trichloroethylene	50.0	U	0.00	56.7	ug/L		113	(70%-130%)			
Vinyl chloride	50.0	U	0.00	49.7	ug/L		99.3	(70%-130%)			
Xylenes (total)	150	U	0.00	168	ug/L		112	(70%-130%)			
**1,2-Dichloroethane-d4	50.0		51.4	49.4	ug/L		98.7	(77%-123%)			
**Bromofluorobenzene	50.0		53.2	49.0	ug/L		98	(80%-120%)			
**Toluene-d8	50.0		46.5	47.7	ug/L		95.5	(80%-120%)			
QC1203251579 365749002 PSD											
1,1,1-Trichloroethane	50.0	U	0.00	59.3	ug/L	0.304	119	(0%-20%)		01/28/15	14:28
1,1,2-Trichloroethane	50.0	U	0.00	51.1	ug/L	0.274	102	(0%-20%)			
1,1-Dichloroethane	50.0	U	0.00	54.3	ug/L	1.28	109	(0%-20%)			
1,1-Dichloroethylene	50.0	U	0.00	56.1	ug/L	1.24	112	(0%-20%)			
1,2-Dichloroethane	50.0	U	0.00	53.1	ug/L	0.207	106	(0%-20%)			
2-Butanone	250	TU	0.00	T 153	ug/L	0.379	61.1 *	(0%-20%)			
4-Methyl-2-pentanone	250	U	0.00	238	ug/L	2.44	95	(0%-20%)			
Acetone	250	TU	0.00	T 112	ug/L	4.23	44.8 *	(0%-20%)			
Benzene	50.0	U	0.00	53.0	ug/L	2.88	106	(0%-20%)			
Carbon disulfide	250	U	0.00	278	ug/L	4.57	111	(0%-20%)			

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1452976										
Carbon tetrachloride	50.0	U	0.00	59.7	ug/L	1.30	119	(0%-20%)	CDS1	01/28/15	14:28
Chlorobenzene	50.0	U	0.00	52.9	ug/L	2.15	106	(0%-20%)			
Chloroform	50.0	U	0.00	54.4	ug/L	0.00	109	(0%-20%)			
Ethylbenzene	50.0	U	0.00	55.7	ug/L	3.04	111	(0%-20%)			
Methylene chloride	50.0	J	4.18	50.9	ug/L	0.549	93.4	(0%-20%)			
Tetrachloroethylene	50.0	U	0.00	54.1	ug/L	1.63	108	(0%-20%)			
Toluene	50.0	U	0.00	51.3	ug/L	2.64	103	(0%-20%)			
Trichloroethylene	50.0	U	0.00	55.1	ug/L	2.93	110	(0%-20%)			
Vinyl chloride	50.0	U	0.00	47.3	ug/L	4.97	94.5	(0%-20%)			
Xylenes (total)	150	U	0.00	164	ug/L	2.46	109	(0%-20%)			
**1,2-Dichloroethane-d4	50.0		51.4	50.6	ug/L		101	(77%-123%)			
**Bromofluorobenzene	50.0		53.2	50.5	ug/L		101	(80%-120%)			
**Toluene-d8	50.0		46.5	48.2	ug/L		96.4	(80%-120%)			

Notes:

The Qualifiers in this report are defined as follows:

- 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.

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QC Summary

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
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. 30-JAN-15	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: VOA GC/MS	Test / Method: SW846 8260C	Matrix Type: Liquid	Client Code: CPRC
Batch ID: 1452976	Sample Numbers: See Below		
<p>Potentially affected work order(s)(SDG): 365553(GEL365553),365663(GEL365663),365668(GEL365668),365700(GEL365700),365749(GEL365749),365755(GEL365755),365758(GEL365758),365759(GEL365759)</p> <p>Application Issues:</p> <p>Failed Recovery for PS/PSD Failed Recovery for MS/MSD, or PS/PSD</p>			
Specification and Requirements		DER Disposition:	
Exception Description:			
<p>1. 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 365749002. The calculated relative percent differences between the MS and MSD were within acceptance limits for all client requested compounds.</p>		<p>1. Narrate and report data.</p>	

Originator's Name:

Crystal Stacey 30-JAN-15

Data Validator/Group Leader:

Erin Haubert 18-FEB-15

Semi-Volatile Analysis

Case Narrative

February 20, 2015
GC/MS Semivolatile
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL365663
Work Order #: 365663

Method/Analysis Information

Procedure: Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

Analytical Method: SW846 3510C/8270D SIM PAH

Prep Method: SW846 3510C

Analytical Batch Number: 1453144

Prep Batch Number: 1453143

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 3510C/8270D SIM PAH:

Sample ID	Client ID
365663002	B2Y664
1203252094	MB for batch 1453143
1203252095	Laboratory Control Sample (LCS)
1203252096	365663002(B2Y664) Matrix Spike (MS)
1203252097	365663002(B2Y664) Matrix Spike Duplicate (MSD)

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

Preparation/Analytical Method Verification

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-009 REV# 35.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP).

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

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Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

Initial Calibration

All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

CCV Requirements

All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG in this batch met the acceptance criteria.

Surrogate Recoveries

All the surrogate recoveries were within the established acceptance criteria for this SDG in this batch.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

QC Sample Designation

Sample 365663002 (B2Y664) was selected for analysis as the matrix spike and matrix spike duplicate.

Spike Recovery Statement

The MS and MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement

The RPD values between the MS and MSD met the acceptance limits.

Internal Standard (ISTD) Acceptance

The internal standard responses used to quantitate the requested target analytes were within the required acceptance criteria for the SDG associated samples in this batch.

Technical Information:

Holding Time Specifications

All samples in this SDG in this batch met the specified holding time.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

Sample Dilutions

The samples in this SDG in this batch did not require dilutions.

Sample Re-extraction/Re-analysis

Re-extractions or re-analyses were not required in this SDG in this analytical batch unless confirmations or dilutions were required.

Miscellaneous Information:

Data Exception (DER) Documentation

A data exception report (DER) was not generated for sample(s) in this SDG in this batch. A data exception report (DER) was not generated for this SDG.

Manual Integrations

Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Manual integrations, if any, are included with the raw data.

TIC Comment

Tentatively identified compounds (TIC) were not required for the samples in this SDG for this batch.

Additional Comments

The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The following additional comments were required:

Due to rounding differences in the calculation, the data reported in the Surrogate Recovery Report may differ slightly from the raw data. Due to software issue, the raw data may not correctly display the updated SPC limits. Please see Sample Data Summary Report and Surrogate Recovery Report for the correct surrogate acceptance limits.

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually 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 of each electronic package will indicate the reviewer name associated with the generation of the data and package. 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.

System Configuration

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

Instrument ID	Instrument	System Configuration	Column ID	Column Description
MSD2.I	Agilent 7890A/5975C GC/MS w/7683 Autosampler	HP7890A/HP5975C	DB-5MS	25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane)

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 20, 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: GEL365663 GEL Work Order: 365663

The Qualifiers in this report are defined as follows:

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

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.

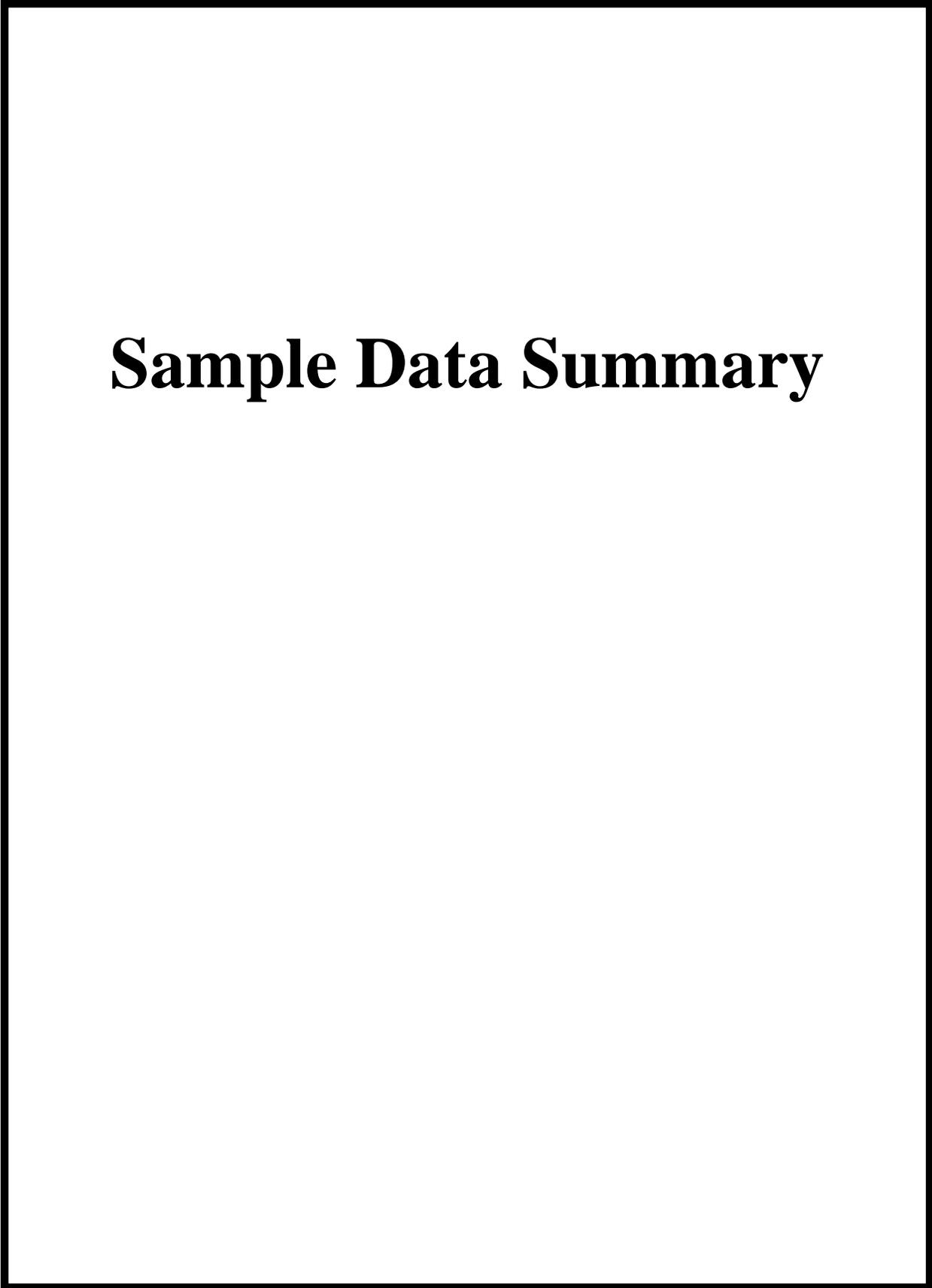
The following data validator verified the information presented in this data report:

Signature: 

Name: **Barbara Bailey**

Date: **17 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 X15-007**

Report Date: January 29, 2015

Client Sample ID:	B2Y664	Project:	CPRC0X15007
Sample ID:	365663002	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	21-JAN-15 13:29		
Receive Date:	23-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatile-GC/MS											
<i>8270_SVOA_GC/MS_SIM: COMMON "As Received"</i>											
Acenaphthene	U	0.00	0.050	20.0	ug/L	1	AGS1	01/28/15	2216	1453144	1
83-32-9											
Acenaphthylene	U	0.00	0.050	25.0	ug/L	1					
208-96-8											
Anthracene	U	0.00	0.050	10.0	ug/L	1					
120-12-7											
Benzo(a)anthracene	U	0.00	0.050	0.300	ug/L	1					
56-55-3											
Benzo(a)pyrene	U	0.00	0.050	0.500	ug/L	1					
50-32-8											
Benzo(b)fluoranthene	U	0.00	0.050	0.500	ug/L	1					
205-99-2											
Benzo(ghi)perylene	U	0.00	0.050	1.00	ug/L	1					
191-24-2											
Benzo(k)fluoranthene	U	0.00	0.050	0.500	ug/L	1					
207-08-9											
Chrysene	U	0.00	0.050	5.00	ug/L	1					
218-01-9											
Dibenzo(a,h)anthracene	U	0.00	0.050	1.00	ug/L	1					
53-70-3											
Fluoranthene	U	0.00	0.050	5.00	ug/L	1					
206-44-0											
Fluorene	U	0.00	0.050	3.00	ug/L	1					
86-73-7											
Indeno(1,2,3-cd)pyrene	U	0.00	0.050	1.00	ug/L	1					
193-39-5											
Naphthalene	U	0.00	0.050	20.0	ug/L	1					
91-20-3											
Phenanthrene	U	0.00	0.050	10.0	ug/L	1					
85-01-8											
Pyrene	U	0.00	0.050	20.0	ug/L	1					
129-00-0											

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch

Quality Control Summary

February 20, 2015
GEL LABORATORIES LLC

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QC Summary

Report Date: January 29, 2015

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CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 365663

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch	1453144										
QC1203252095	LCS										
Acenaphthene	10.0		J	6.57	ug/L		65.7	(40%-107%)	AGS1	01/28/15	21:46
Acenaphthylene	10.0		J	6.84	ug/L		68.4	(37%-112%)			
Anthracene	10.0		J	6.98	ug/L		69.8	(44%-113%)			
Benzo(a)anthracene	10.0			6.68	ug/L		66.8	(47%-111%)			
Benzo(a)pyrene	10.0			6.76	ug/L		67.6	(46%-124%)			
Benzo(b)fluoranthene	10.0			7.35	ug/L		73.5	(48%-129%)			
Benzo(ghi)perylene	10.0			6.33	ug/L		63.3	(39%-124%)			
Benzo(k)fluoranthene	10.0			7.53	ug/L		75.3	(51%-125%)			
Chrysene	10.0			6.71	ug/L		67.1	(51%-117%)			
Dibenzo(a,h)anthracene	10.0			7.03	ug/L		70.3	(38%-128%)			
Fluoranthene	10.0			7.46	ug/L		74.6	(40%-120%)			
Fluorene	10.0			7.01	ug/L		70.1	(41%-113%)			
Indeno(1,2,3-cd)pyrene	10.0			6.63	ug/L		66.3	(39%-128%)			
Naphthalene	10.0		J	6.32	ug/L		63.2	(33%-102%)			
Phenanthrene	10.0		J	6.56	ug/L		65.6	(45%-111%)			
Pyrene	10.0		J	5.95	ug/L		59.5	(42%-123%)			
**5-alpha-Androstane	5.00			3.65	ug/L		73	(35%-112%)			
QC1203252094	MB										
Acenaphthene			U	0.050	ug/L					01/28/15	21:17
Acenaphthylene			U	0.050	ug/L						

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QC Summary

Workorder: 365663

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Parname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch	1453144										
Anthracene			U	0.050	ug/L						
Benzo(a)anthracene			U	0.050	ug/L				AGS1	01/28/15	21:17
Benzo(a)pyrene			U	0.050	ug/L						
Benzo(b)fluoranthene			U	0.050	ug/L						
Benzo(ghi)perylene			U	0.050	ug/L						
Benzo(k)fluoranthene			U	0.050	ug/L						
Chrysene			U	0.050	ug/L						
Dibenzo(a,h)anthracene			U	0.050	ug/L						
Fluoranthene			U	0.050	ug/L						
Fluorene			U	0.050	ug/L						
Indeno(1,2,3-cd)pyrene			U	0.050	ug/L						
Naphthalene			U	0.050	ug/L						
Phenanthrene			U	0.050	ug/L						
Pyrene			U	0.050	ug/L						
**5-alpha-Androstane	5.00			4.33	ug/L		86.6	(35%-112%)			
QC1203252096 365663002 MS											
Acenaphthene	20.0	U	0.050	J	13.4	ug/L	66.9	(38%-103%)		01/28/15	22:46
Acenaphthylene	20.0	U	0.050	J	13.9	ug/L	69.6	(36%-104%)			
Anthracene	20.0	U	0.050		14.2	ug/L	71.2	(28%-113%)			
Benzo(a)anthracene	20.0	U	0.050		13.8	ug/L	69.2	(43%-103%)			
Benzo(a)pyrene	20.0	U	0.050		14.5	ug/L	72.5	(28%-121%)			
Benzo(b)fluoranthene	20.0	U	0.050		15.2	ug/L	75.9	(33%-123%)			
Benzo(ghi)perylene	20.0	U	0.050		14.1	ug/L	70.4	(39%-124%)			

February 20, 2015
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QC Summary

Workorder: 365663

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch	1453144										
Benzo(k)fluoranthene	20.0	U	0.050		15.5	ug/L	77.3	(39%-119%)	AGS1	01/28/15	22:46
Chrysene	20.0	U	0.050		13.9	ug/L	69.3	(51%-117%)			
Dibenzo(a,h)anthracene	20.0	U	0.050		16.2	ug/L	80.8	(30%-119%)			
Fluoranthene	20.0	U	0.050		15.1	ug/L	75.3	(36%-120%)			
Fluorene	20.0	U	0.050		14.3	ug/L	71.3	(41%-113%)			
Indeno(1,2,3-cd)pyrene	20.0	U	0.050		15.2	ug/L	76	(39%-128%)			
Naphthalene	20.0	U	0.050	J	12.8	ug/L	64.1	(33%-102%)			
Phenanthrene	20.0	U	0.050		13.5	ug/L	67.3	(39%-107%)			
Pyrene	20.0	U	0.050	J	12.2	ug/L	61	(28%-125%)			
**5-alpha-Androstane	10.0		4.18		8.02	ug/L	80.2	(35%-112%)			
QC1203252097 365663002 MSD											
Acenaphthene	20.0	U	0.050	J	13.5	ug/L	1.04	(0%-20%)		01/28/15	23:15
Acenaphthylene	20.0	U	0.050	J	14.1	ug/L	1.00	(0%-20%)			
Anthracene	20.0	U	0.050		14.4	ug/L	0.839	(0%-20%)			
Benzo(a)anthracene	20.0	U	0.050		14.0	ug/L	1.29	(0%-20%)			
Benzo(a)pyrene	20.0	U	0.050		14.7	ug/L	1.23	(0%-26%)			
Benzo(b)fluoranthene	20.0	U	0.050		15.4	ug/L	1.44	(0%-20%)			
Benzo(ghi)perylene	20.0	U	0.050		14.2	ug/L	0.567	(0%-20%)			
Benzo(k)fluoranthene	20.0	U	0.050		15.5	ug/L	0.516	(0%-20%)			
Chrysene	20.0	U	0.050		14.0	ug/L	1.29	(0%-20%)			
Dibenzo(a,h)anthracene	20.0	U	0.050		16.2	ug/L	0.494	(0%-20%)			
Fluoranthene	20.0	U	0.050		15.4	ug/L	2.23	(0%-20%)			

February 20, 2015
GEL LABORATORIES LLC

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QC Summary

Workorder: **365663**

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch	1453144										
Fluorene	20.0	U	0.050		14.3	ug/L	0.00	71.3	(0%-20%)	AGS1	01/28/15 23:15
Indeno(1,2,3-cd)pyrene	20.0	U	0.050		15.3	ug/L	0.525	76.4	(0%-20%)		
Naphthalene	20.0	U	0.050	J	13.4	ug/L	4.42	67	(0%-20%)		
Phenanthrene	20.0	U	0.050		13.6	ug/L	0.888	67.9	(0%-20%)		
Pyrene	20.0	U	0.050	J	12.4	ug/L	1.30	61.8	(0%-20%)		
*5-alpha-Androstane	10.0		4.18		8.38	ug/L		83.8	(35%-112%)		

Notes:

The Qualifiers in this report are defined as follows:

- 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.

FID Diesel Range Organics Analysis

Case Narrative

February 20, 2015
Diesel Range Organics
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL365663
Work Order #:

Method/Analysis Information

Procedure: Analysis of Diesel Range Organics by Flame Ionization Detector
Analytical Method: NWTPH-Dx
Prep Method: SW846 3535A
Analytical Batch Number: 1452783
Prep Batch Number: 1452781

Sample Analysis

The following samples were analyzed using the analytical protocol as established in NWTPH-Dx:

Sample ID	Client ID
365663002	B2Y664
1203251112	MB for batch 1452781
1203251113	Laboratory Control Sample (LCS)
1203251114	365481004(B2Y661) Matrix Spike (MS)
1203251115	365481004(B2Y661) Matrix Spike Duplicate (MSD)

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

Preparation/Analytical Method Verification

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-003 REV# 25.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP).

Calibration Information

Initial Calibration

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

Continuing Calibration Verification (CCV) Requirements

All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria. Analyte peaks eluted within the established retention time windows for this method.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

All surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

QC Sample Designation

CPRC sample 365481004 (B2Y661) was selected for the matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement

The MS recovery was within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement

The MSD recovery was within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement

The RPD between the MS and MSD met the acceptance limits.

Technical Information

Holding Time Specifications

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

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP. Analyte peaks eluted within the established retention time windows for this method.

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis

Re-extractions or re-analyses were not required in this SDG.

Miscellaneous Information

Electronic Package Comment

This package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually 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 Exception (DER) Documentation

Data exception report (DER) is generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A DER was not required for this SDG in this batch.

Manual Integrations

Certain standards and samples may have required manual integration to correctly position the baseline as set in the calibration standard injections. If manual integration was performed, copies of all manual integration peak profiles are included in the raw data section of this fraction.

Additional Comments

The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The additional comments were not required.

System Configuration

The Diesel Range Organics analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
FID7.I	Agilent Gas Chromatograph	Agilent 6890N GC/FID	DB-5MS	30m x 0.25mm, 0.25um(J&W)

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 20, 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: GEL365663 GEL Work Order: 365663

The Qualifiers in this report are defined as follows:

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

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.

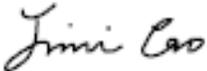
RA Indicates that sample is re-analyzed without re-extraction.

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.

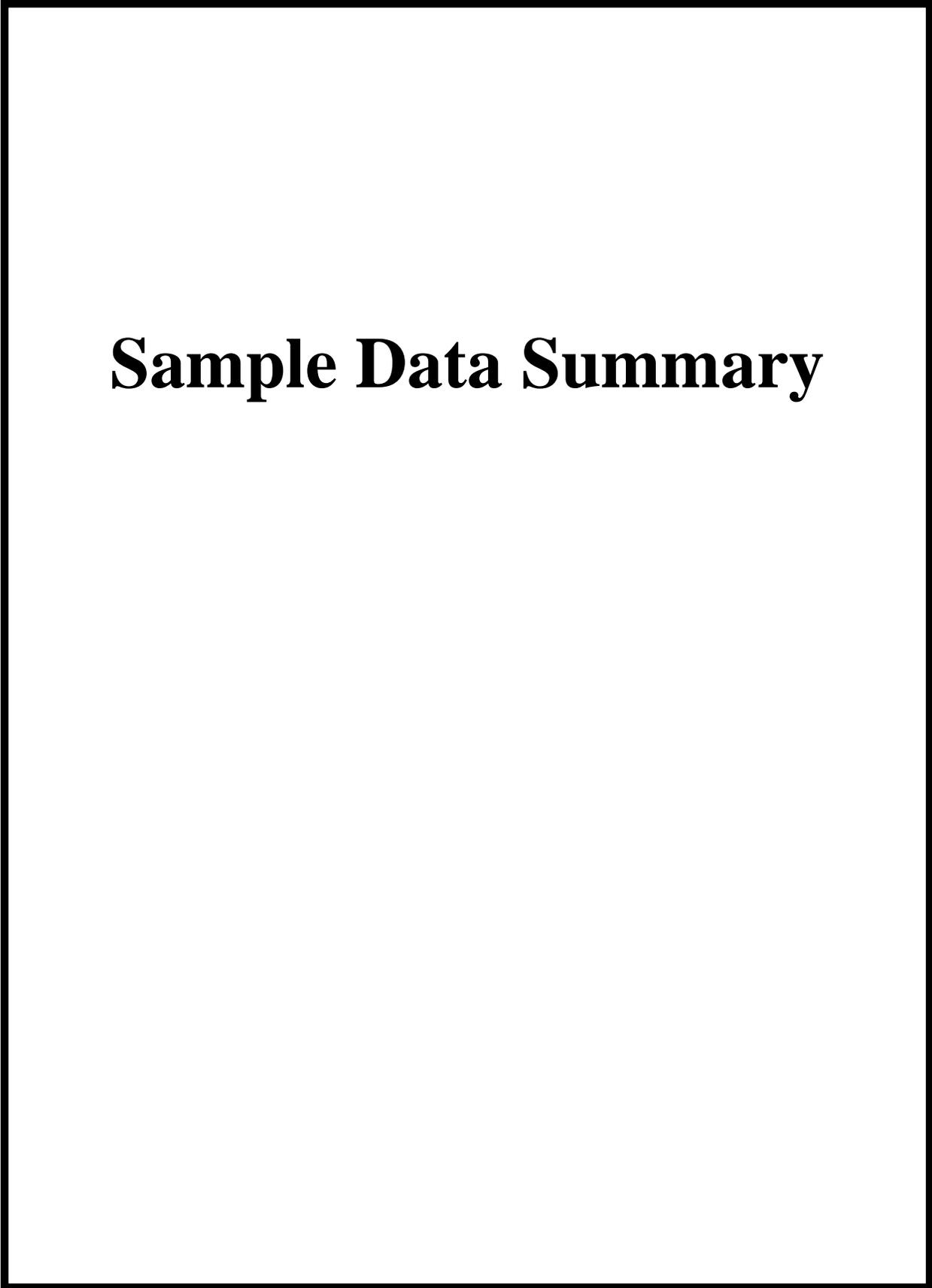
The following data validator verified the information presented in this data report:

Signature: 

Name: Jimin Cao

Date: 30 JAN 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 X15-007**

Report Date: January 28, 2015

Client Sample ID:	B2Y664	Project:	CPRC0X15007
Sample ID:	365663002	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	21-JAN-15 13:29		
Receive Date:	23-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Diesel Range Organics											
<i>(WTPH_DIESEL:COMMON) + (MOTOR OIL) "As Received"</i>											
Diesel Range Organics	J	75.9	47.6	190	ug/L	1	BYT1	01/28/15	0223	1452783	1
DRO											
Motor Oil	J	75.7	47.6	190	ug/L	1					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3535A	3535A DRO IN LIQ PREP	RXC1	01/27/15	1015	1452781

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	NWTPH-Dx	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
o-Terphenyl	(WTPH_DIESEL:COMMON) + (MOTOR OIL) "As Received"	12.5 ug/L	19.0	65.5	(50%-150%)

Quality Control Summary

February 20, 2015
GEL LABORATORIES LLC

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

QC Summary

Report Date: January 30, 2015

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CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 365663

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Diesel Range Organics											
Batch	1452783										
QC1203251113	LCS										
Diesel Range Organics	2000			1740	ug/L		86.8	(70%-130%)	BYT1	01/27/15	16:43
Motor Oil	2000			2050	ug/L		103	(70%-130%)			
**o-Terphenyl	20.0			19.0	ug/L		95.2	(50%-150%)			
QC1203251112	MB										
Diesel Range Organics			U	50.0	ug/L					01/27/15	16:05
Motor Oil			U	50.0	ug/L						
**o-Terphenyl	20.0			15.0	ug/L		75.2	(50%-150%)			
QC1203251114	365481004	MS									
Diesel Range Organics	1900	U	47.6	1640	ug/L		85.8	(70%-130%)		01/27/15	18:40
Motor Oil	1900	U	47.6	1820	ug/L		95.4	(70%-130%)			
**o-Terphenyl	19.0		15.5	16.4	ug/L		86.1	(50%-150%)			
QC1203251115	365481004	MSD									
Diesel Range Organics	1900	U	47.6	1500	ug/L	8.43	78.9	(0%-20%)		01/27/15	19:18
Motor Oil	1900	U	47.6	1680	ug/L	7.61	88.4	(0%-20%)			
**o-Terphenyl	19.0		15.5	18.0	ug/L		94.5	(50%-150%)			

Notes:

The Qualifiers in this report are defined as follows:

- 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

February 20, 2015

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QC Summary

Workorder: 365663

Page 2 of 2

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

GC Volatiles (GRO) Analysis

Case Narrative

February 20, 2015
GC Volatiles (GRO)
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL365663
Work Order #: 365663

Method/Analysis Information

Procedure: Volatile Total Petroleum Hydrocarbons by Flame Ionization Detector
Analytical Method: NWTPH-Gx
Analytical Batch Number: 1454683

Sample Analysis

The following client and quality control samples were analyzed to complete this sample delivery group/work order using the methods referenced in the Analysis Information section:

Sample ID	Client ID
365663002	B2Y664
1203256238	MB for batch 1454683
1203256239	Laboratory Control Sample (LCS)
1203256240	365553014(B2Y655) Post Spike (PS)
1203256241	365553014(B2Y655) Post Spike Duplicate (PSD)

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

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.

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-004 REV# 25.

Calibration Information

Initial Calibration

All initial calibration requirements have been met for this sample delivery group (SDG). See the calibration history report for a list of data files that were used to generate the initial calibration curve in the Standard Data Section of this data package.

CCV Requirements

All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria. Analyte peaks eluted within the established retention time windows for this method.

Quality Control (QC) Information

Method Blank (MB) Statement

February 20, 2015

The MB(s) analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

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

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

QC Sample Designation

Sample 365553014 (B2Y655) was selected for analysis as the matrix spike.

Spike Recovery Statement

The GRO recovery was within the acceptance limits.

Relative Percent Difference (RPD) Statement

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

Technical Information

Holding Time Specifications

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

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis

Re-extractions or re-analyses were not required 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

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

Manual Integrations

Data files associated with the initial calibration, continuing calibration check(s), and samples may have been manually integrated to correct misidentification of peaks by the integration software.

Additional Comments

GRO was not detected above the PQL in any of the samples, therefore no additional analyses were analyzed.

System Configuration

The GRO Organics analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
VOC4A.I	Agilent 6890N GC/FID w/ OI 4560/Archon Autosampler	HP6890N GC/FID	DB-624	0.53mm x 3.0u x 15m	OI #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 20, 2015

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**Qualifier Definition Report
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL365663 GEL Work Order: 365663

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.

DL Indicates that sample is diluted.

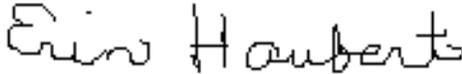
RA Indicates that sample is re-analyzed without re-extraction.

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.

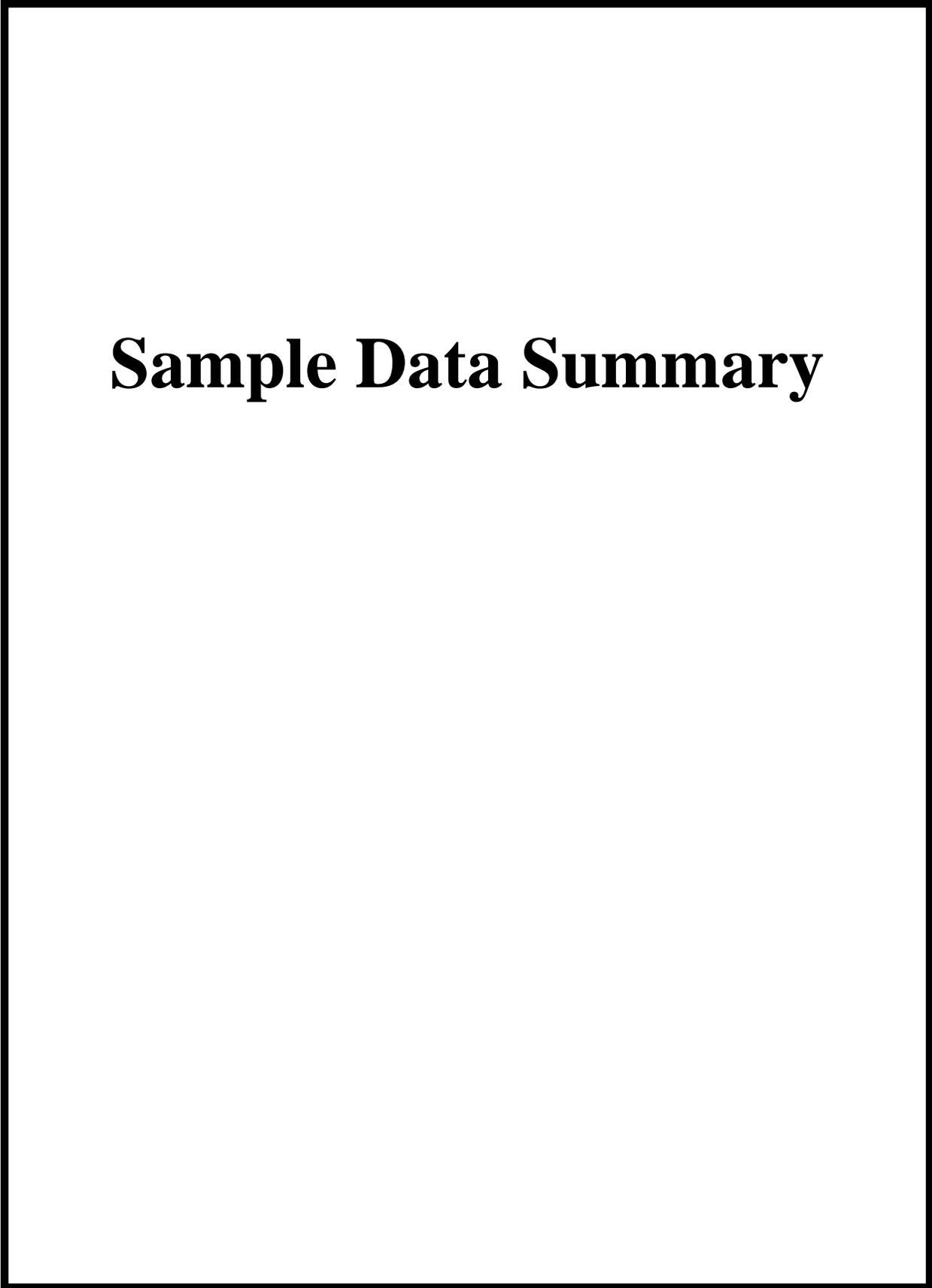
The following data validator verified the information presented in this data report:

Signature: 

Name: Erin Haubert

Date: 16 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 X15-007**

Report Date: February 16, 2015

Client Sample ID:	B2Y664	Project:	CPRC0X15007
Sample ID:	365663002	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	21-JAN-15 13:29		
Receive Date:	23-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatiles GRO Organics											
<i>NWTPH-Gx GRO Liquid "As Received"</i>											
Gasoline Range Organics	U	0.00	16.7	50.0	ug/L	1	ACJ	02/02/15	1947	1454683	1

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	NWTPH-Gx	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Bromofluorobenzene	NWTPH-Gx GRO Liquid "As Received"	47.2 ug/L	50.0	94.4	(50%-150%)

Quality Control Summary

February 20, 2015
GEL LABORATORIES LLC

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QC Summary

Report Date: February 16, 2015

Page 1 of 2

CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 365663

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatiles GRO Organics											
Batch	1454683										
QC1203256239	LCS										
Gasoline Range Organics	500			490	ug/L		98	(70%-130%)	ACJ	02/02/15	11:47
**Bromofluorobenzene	50.0			56.0	ug/L		112	(50%-150%)			
QC1203256238	MB										
Gasoline Range Organics			U	16.7	ug/L					02/02/15	12:15
**Bromofluorobenzene	50.0			51.5	ug/L		103	(50%-150%)			
QC1203256240	365553014	PS									
Gasoline Range Organics	500	U	13.9	473	ug/L		91.7	(70%-130%)		02/02/15	20:15
**Bromofluorobenzene	50.0	46.1		47.0	ug/L		93.9	(50%-150%)			
QC1203256241	365553014	PSD									
Gasoline Range Organics	500	U	13.9	452	ug/L	4.50	87.6	(0%-20%)		02/02/15	20:43
**Bromofluorobenzene	50.0	46.1		47.3	ug/L		94.7	(50%-150%)			

Notes:

The Qualifiers in this report are defined as follows:

- 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

February 20, 2015

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QC Summary

Workorder: 365663

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

- 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.

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL365663
Work Order #: 365663

Sample ID	Client ID
365663002	B2Y664
1203250602	Method Blank (MB)ICP
1203250603	Laboratory Control Sample (LCS)
1203250606	365668003(B30148L) Serial Dilution (SD)
1203250604	365668003(B30148S) Matrix Spike (MS)
1203250605	365668003(B30148SD) Matrix Spike Duplicate (MSD)
1203250548	Method Blank (MB)ICP-MS
1203250549	Laboratory Control Sample (LCS)
1203250552	365668003(B30148L) Serial Dilution (SD)
1203250550	365668003(B30148S) Matrix Spike (MS)
1203250551	365668003(B30148SD) Matrix Spike Duplicate (MSD)

Sample Analysis

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

Method/Analysis Information

Analytical Batch:	1452575 and 1452552
Prep Batch :	1452573 and 1452551
Standard Operating Procedures:	GL-MA-E-013 REV# 23, GL-MA-E-006 REV# 11 and GL-MA-E-014 REV# 25
Analytical Method:	SW846 3005A/6010C and SW846 3005A/6020A
Prep Method :	SW846 3005A

Preparation/Analytical Method Verification

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

System Configuration

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

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and

dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum.

Calibration Information

Instrument Calibration

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

CRDL/PQL Requirements

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

ICSA/ICSAB Statement

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

Continuing Calibration Blanks (CCB) Requirements

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

Continuing Calibration Verification (CCV) Requirements

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

Quality Control (QC) Information

Method Blank (MB) Statement

The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement

The following samples were selected as the quality control (QC) samples for this SDG: 365668003 (B30148)-ICP-MS and ICP.

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

Barium and uranium did not meet the established percent difference criteria. 1203250552 (Non SDG 365668003SDILT)-ICP-MS.

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 samples in this SDG did not require dilutions.

Preparation Information

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

Miscellaneous Information

Electronic Packaging Comment

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

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

Data Exception (DER) Documentation

A data exception report was not required for this SDG.

Additional Comments

Additional comments were not required for this SDG.

Certification Statement

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

February 20, 2015

GEL LABORATORIES LLC

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**Qualifier Definition Report
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL365663 GEL Work Order: 365663

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.

M Duplicate precision not met.

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:

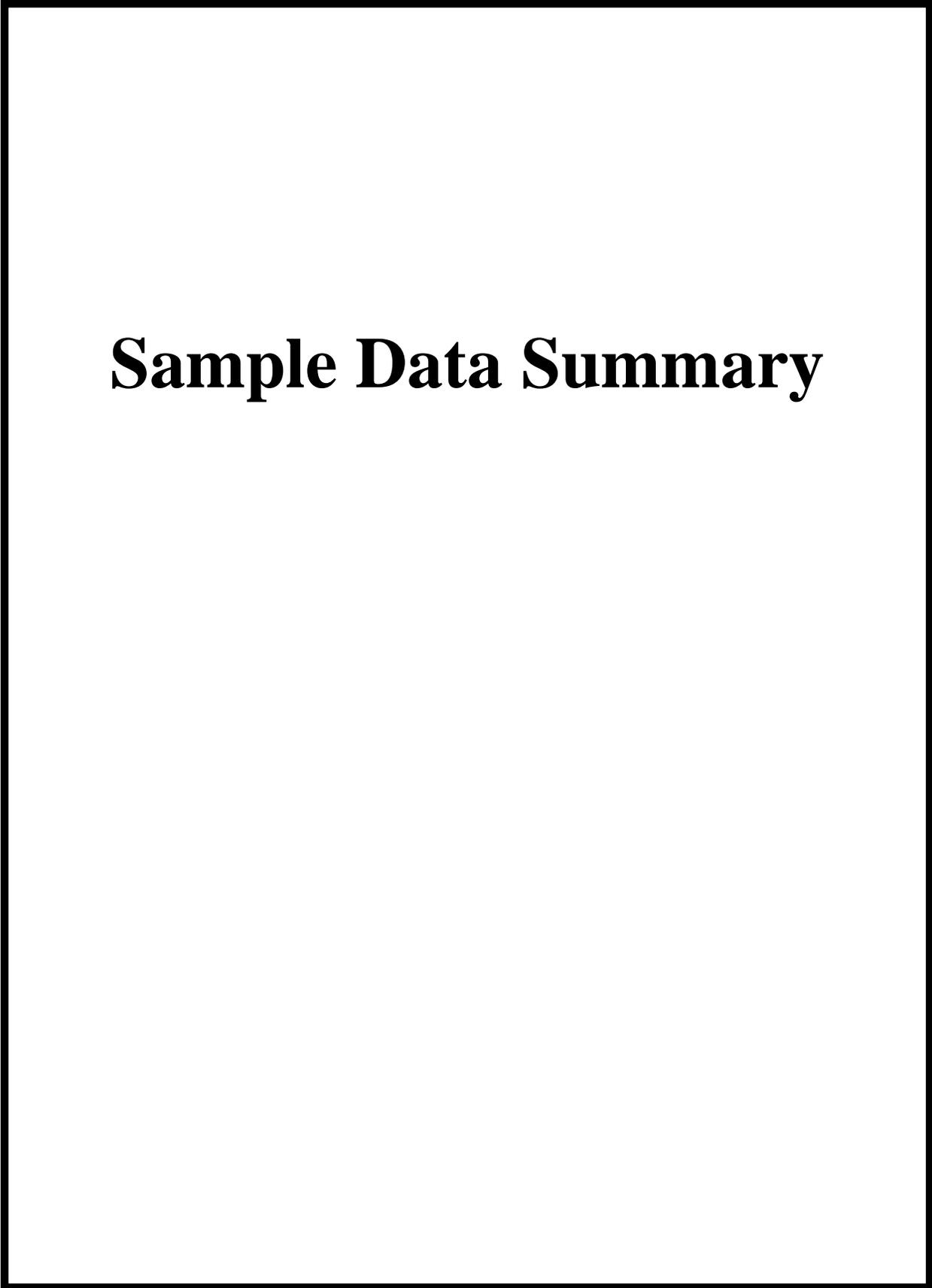
Signature:



Name: Jamie Johnson

Date: 19 FEB 2015

Title: Group Leader



Sample Data Summary

~~February 20, 2015~~
GEL LABORATORIES LLC

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

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 X15-007**

Report Date: February 19, 2015

Client Sample ID:	B2Y664	Project:	CPRC0X15007
Sample ID:	365663002	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	21-JAN-15 13:29		
Receive Date:	23-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP											
<i>6010_METALS_ICP: GW 07 (BIOREM) "As Received"</i>											
Boron 7440-42-8	B	41.1	+/-9.63	15.0	50.0	ug/L	1	HSC	01/29/15	2027	1452575 1
Calcium 7440-70-2		157000	+/-31300	50.0	200	ug/L	1				
Iron 7439-89-6	B	74.6	+/-18.0	30.0	100	ug/L	1				
Magnesium 7439-95-4		26800	+/-5350	110	300	ug/L	1				
Phosphorous 7723-14-0	B	108	+/-29.5	60.0	150	ug/L	1				
Potassium 7440-09-7		5780	+/-1160	50.0	150	ug/L	1				
Silicon 7440-21-3		12700	+/-2540	25.0	100	ug/L	1				
Sodium 7440-23-5		50600	+/-10100	100	300	ug/L	1				
Vanadium 7440-62-2	B	2.12	+/-0.539	1.00	5.00	ug/L	1				
Metals Analysis-ICP-MS											
<i>6020_METALS_ICPMS: GW 01 "As Received"</i>											
Aluminum 7429-90-5	U	8.03	+/-5.25	15.0	50.0	ug/L	1	SKJ	02/19/15	0053	1452552 2
Antimony 7440-36-0	U	0.125	+/-0.334	1.00	5.00	ug/L	1				
Arsenic 7440-38-2	U	-0.617	+/-0.580	1.70	5.00	ug/L	1				
Barium 7440-39-3		129	+/-25.7	0.600	5.00	ug/L	1				
Cadmium 7440-43-9	U	0.037	+/-0.0374	0.110	2.00	ug/L	1				
Chromium 7440-47-3		15.4	+/-3.15	2.00	10.0	ug/L	1				
Cobalt 7440-48-4	B	0.438	+/-0.0937	0.100	4.00	ug/L	1				
Copper	B	1.61	+/-0.343	0.350	8.00	ug/L	1				

GELL LABORATORIES LLC

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

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 X15-007**

Report Date: February 19, 2015

Client Sample ID: B2Y664 Project: CPRC0X15007
 Sample ID: 365663002 Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
<i>6020_METALS_ICPMS: GW 01 "As Received"</i>											
7440-50-8											
Lead	U	0.079	+/-0.167	0.500	2.00	ug/L					
7439-92-1											
Manganese	B	1.55	+/-0.455	1.00	5.00	ug/L					
7439-96-5											
Molybdenum	B	0.361	+/-0.0908	0.165	20.0	ug/L					
7439-98-7											
Nickel		9.89	+/-1.99	0.500	2.00	ug/L					
7440-02-0											
Selenium	U	0.499	+/-0.510	1.50	5.00	ug/L					
7782-49-2											
Silver	U	0.020	+/-0.0668	0.200	2.00	ug/L					
7440-22-4											
Thallium	U	0.139	+/-0.153	0.450	2.00	ug/L					
7440-28-0											
Thorium	U	0.113	+/-0.130	0.383	2.00	ug/L					
7440-29-1											
Tin	U	0.148	+/-0.335	1.00	5.00	ug/L					
7440-31-5											
Uranium		7.90	+/-1.58	0.067	0.200	ug/L					
7440-61-1											
Zinc	B	6.96	+/-1.82	3.50	10.0	ug/L					
7440-66-6											
Beryllium	U	0.015	+/-0.0667	0.200	2.00	ug/L	1	SKJ	02/19/15	1139	1452552 3
7440-41-7											
Boron		43.7	+/-8.84	4.00	15.0	ug/L					
7440-42-8											
Strontium		872	+/-174	2.00	10.0	ug/L	1	SKJ	02/19/15	1414	1452552 4
7440-24-6											

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JXM5	01/26/15	0800	1452551
SW846 3005A	SW846 3005A for 6010C	JXM5	01/26/15	0800	1452573

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 3005A/6010C	

Quality Control Summary

February 20, 2015
GEL LABORATORIES LLC

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

QC Summary

Report Date: February 19, 2015

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CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 365663

Parmname	NOM	Sample Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS										
Batch	1452552									
QC1203250549	LCS									
Aluminum	2000		2120	ug/L		106	(80%-120%)	SKJ	02/19/15	00:47
Antimony	50.0		55.4	ug/L		111	(80%-120%)			
Arsenic	50.0		49.9	ug/L		99.7	(80%-120%)			
Barium	50.0		53.4	ug/L		107	(80%-120%)			
Beryllium	50.0		59.3	ug/L		119	(80%-120%)		02/19/15	11:38
Boron	100		113	ug/L		113	(80%-120%)			
Cadmium	50.0		54.3	ug/L		109	(80%-120%)		02/19/15	00:47
Chromium	50.0		49.4	ug/L		98.8	(80%-120%)			
Cobalt	50.0		47.1	ug/L		94.2	(80%-120%)			
Copper	50.0		49.6	ug/L		99.1	(80%-120%)			
Lead	50.0		52.1	ug/L		104	(80%-120%)			
Manganese	50.0		49.4	ug/L		98.9	(80%-120%)			
Molybdenum	50.0		51.1	ug/L		102	(80%-120%)			
Nickel	50.0		48.7	ug/L		97.3	(80%-120%)			
Selenium	50.0		52.7	ug/L		105	(80%-120%)			
Silver	50.0		53.0	ug/L		106	(80%-120%)			
Strontium	50.0		59.3	ug/L		119	(80%-120%)		02/19/15	14:30
Thallium	50.0		49.7	ug/L		99.4	(80%-120%)		02/19/15	00:47
Thorium	50.0		52.3	ug/L		105	(80%-120%)			
Tin	50.0		54.4	ug/L		109	(80%-120%)			

February 20, 2015
GEL LABORATORIES LLC

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QC Summary

Workorder: 365663

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1452552										
Uranium	50.0			51.7	ug/L		103	(80%-120%)	SKJ	02/19/15	00:47
Zinc	50.0			55.6	ug/L		111	(80%-120%)			
QC1203250548	MB										
Aluminum			U	ND	ug/L					02/19/15	00:40
Antimony			U	ND	ug/L						
Arsenic			U	ND	ug/L						
Barium			U	ND	ug/L						
Beryllium			U	ND	ug/L					02/19/15	11:37
Boron			U	ND	ug/L						
Cadmium			U	ND	ug/L					02/19/15	00:40
Chromium			U	ND	ug/L						
Cobalt			U	ND	ug/L						
Copper			U	ND	ug/L						
Lead			U	ND	ug/L						
Manganese			U	ND	ug/L						
Molybdenum			U	ND	ug/L						
Nickel			U	ND	ug/L						
Selenium			U	ND	ug/L						
Silver			U	ND	ug/L						
Strontium			U	ND	ug/L					02/19/15	14:12
Thallium			U	ND	ug/L					02/19/15	00:40
Thorium			U	ND	ug/L						

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1452552										
Tin			U	ND	ug/L				SKJ	02/19/15	00:40
Uranium			U	ND	ug/L						
Zinc			U	ND	ug/L						
QC1203250550 365668003 MS											
Aluminum	2000	B	32.8	1990	ug/L		97.6	(75%-125%)		02/19/15	01:20
Antimony	50.0	U	ND	55.1	ug/L		110	(75%-125%)			
Arsenic	50.0	U	ND	51.0	ug/L		100	(75%-125%)			
Barium	50.0		150	197	ug/L		95	(75%-125%)			
Beryllium	50.0		0.011	58.8	ug/L		118	(75%-125%)		02/19/15	11:42
Boron	100		26.5	141	ug/L		114	(75%-125%)			
Cadmium	50.0		0.032	52.3	ug/L		105	(75%-125%)		02/19/15	01:20
Chromium	50.0		8.40	55.3	ug/L		93.8	(75%-125%)			
Cobalt	50.0		0.317	45.1	ug/L		89.5	(75%-125%)			
Copper	50.0		0.842	45.0	ug/L		88.3	(75%-125%)			
Lead	50.0		0.066	49.4	ug/L		98.7	(75%-125%)			
Manganese	50.0		1.72	48.5	ug/L		93.6	(75%-125%)			
Molybdenum	50.0		1.62	54.1	ug/L		105	(75%-125%)			
Nickel	50.0		5.56	49.7	ug/L		88.3	(75%-125%)			
Selenium	50.0		2.27	53.1	ug/L		102	(75%-125%)			
Silver	50.0		0.034	51.0	ug/L		102	(75%-125%)			
Strontium	50.0		556	654	ug/L		N/A	(75%-125%)		02/19/15	14:19
Thallium	50.0		0.042	47.9	ug/L		95.8	(75%-125%)		02/19/15	01:20

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1452552										
Thorium	50.0	0.104		51.3	ug/L		102	(75%-125%)	SKJ	02/19/15	01:20
Tin	50.0	0.127		53.3	ug/L		106	(75%-125%)			
Uranium	50.0	9.53		60.3	ug/L		101	(75%-125%)			
Zinc	50.0	2.21		52.0	ug/L		99.5	(75%-125%)			
QC1203250551 365668003 MSD											
Aluminum	2000	B	32.8	2030	ug/L	2.40	100	(0%-20%)		02/19/15	01:27
Antimony	50.0	U	ND	55.2	ug/L	0.167	110	(0%-20%)			
Arsenic	50.0	U	ND	52.9	ug/L	3.66	104	(0%-20%)			
Barium	50.0		150	203	ug/L	3.10	107	(0%-20%)			
Beryllium	50.0		0.011	60.8	ug/L	3.40	122	(0%-20%)		02/19/15	11:43
Boron	100		26.5	146	ug/L	3.91	120	(0%-20%)			
Cadmium	50.0		0.032	54.1	ug/L	3.38	108	(0%-20%)		02/19/15	01:27
Chromium	50.0		8.40	58.9	ug/L	6.40	101	(0%-20%)			
Cobalt	50.0		0.317	44.7	ug/L	0.916	88.7	(0%-20%)			
Copper	50.0		0.842	46.6	ug/L	3.59	91.6	(0%-20%)			
Lead	50.0		0.066	50.4	ug/L	1.88	101	(0%-20%)			
Manganese	50.0		1.72	49.4	ug/L	1.76	95.3	(0%-20%)			
Molybdenum	50.0		1.62	54.1	ug/L	0.00924	105	(0%-20%)			
Nickel	50.0		5.56	52.4	ug/L	5.21	93.6	(0%-20%)			
Selenium	50.0		2.27	53.6	ug/L	0.944	103	(0%-20%)			
Silver	50.0		0.034	51.2	ug/L	0.562	102	(0%-20%)			
Strontium	50.0		556	647	ug/L	1.05	N/A	(0%-20%)		02/19/15	14:21

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1452552										
Thallium	50.0	0.042		48.6	ug/L	1.34	97.1	(0%-20%)	SKJ	02/19/15	01:27
Thorium	50.0	0.104		52.9	ug/L	2.97	106	(0%-20%)			
Tin	50.0	0.127		54.6	ug/L	2.42	109	(0%-20%)			
Uranium	50.0	9.53		60.9	ug/L	0.986	103	(0%-20%)			
Zinc	50.0	2.21		52.5	ug/L	0.921	101	(0%-20%)			
QC1203250552 365668003 SDILT											
Aluminum		B	32.8 DU	ND	ug/L	N/A		(0%-10%)		02/19/15	01:40
Antimony		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Arsenic		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Barium			150 DM	40.6	ug/L	35.8*		(0%-10%)			
Beryllium			0.011 DU	ND	ug/L	N/A		(0%-10%)		02/19/15	11:44
Boron			26.5 D	7.46	ug/L	40.7		(0%-10%)			
Cadmium			0.032 DU	ND	ug/L	N/A		(0%-10%)		02/19/15	01:40
Chromium			8.40 D	2.41	ug/L	43.3		(0%-10%)			
Cobalt			0.317 DU	ND	ug/L	N/A		(0%-10%)			
Copper			0.842 DU	ND	ug/L	N/A		(0%-10%)			
Lead			0.066 DU	ND	ug/L	N/A		(0%-10%)			
Manganese			1.72 DU	ND	ug/L	N/A		(0%-10%)			
Molybdenum			1.62 D	0.431	ug/L	33		(0%-10%)			
Nickel			5.56 D	1.60	ug/L	43.9		(0%-10%)			
Selenium			2.27 DU	ND	ug/L	N/A		(0%-10%)			
Silver			0.034 DU	ND	ug/L	N/A		(0%-10%)			

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Parname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1452552										
Strontium		556	D	120	ug/L	8.32		(0%-10%)	SKJ	02/19/15	14:23
Thallium		0.042	DU	ND	ug/L	N/A		(0%-10%)		02/19/15	01:40
Thorium		0.104	DU	ND	ug/L	N/A		(0%-10%)			
Tin		0.127	DU	ND	ug/L	N/A		(0%-10%)			
Uranium		9.53	DM	2.63	ug/L	37.8*		(0%-10%)			
Zinc		2.21	DU	ND	ug/L	N/A		(0%-10%)			
Metals Analysis-ICP											
Batch	1452575										
QC1203250603	LCS										
Boron	500			474	ug/L		94.9	(80%-120%)	HSC	01/29/15	20:11
Calcium	5000			4860	ug/L		97.2	(80%-120%)			
Iron	5000			4960	ug/L		99.1	(80%-120%)			
Magnesium	5000			4940	ug/L		98.9	(80%-120%)			
Phosphorous	500			509	ug/L		102	(80%-120%)			
Potassium	5000			5090	ug/L		102	(80%-120%)			
Silicon	5000			4760	ug/L		95.3	(80%-120%)			
Sodium	5000			5140	ug/L		103	(80%-120%)			
Vanadium	500			507	ug/L		101	(80%-120%)			
QC1203250602	MB										
Boron			U	ND	ug/L					01/29/15	20:08
Calcium			U	ND	ug/L						
Iron			U	ND	ug/L						
Magnesium			U	ND	ug/L						

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1452575										
Phosphorous			U	ND	ug/L						
Potassium			U	ND	ug/L				HSC	01/29/15	20:08
Silicon			U	ND	ug/L						
Sodium			U	ND	ug/L						
Vanadium			U	ND	ug/L						
QC1203250604 365668003 MS											
Boron	500	B	22.9	541	ug/L		104	(75%-125%)		01/29/15	20:17
Calcium	5000		109000	120000	ug/L		N/A	(75%-125%)			
Iron	5000	B	69.9	5140	ug/L		101	(75%-125%)			
Magnesium	5000		22200	28500	ug/L		N/A	(75%-125%)			
Phosphorous	500	B	60.7	587	ug/L		105	(75%-125%)			
Potassium	5000		9480	14900	ug/L		109	(75%-125%)			
Silicon	5000		20200	26400	ug/L		N/A	(75%-125%)			
Sodium	5000		22400	28800	ug/L		N/A	(75%-125%)			
Vanadium	500		8.38	546	ug/L		108	(75%-125%)			
QC1203250605 365668003 MSD											
Boron	500	B	22.9	538	ug/L	0.517	103	(0%-20%)		01/29/15	20:20
Calcium	5000		109000	121000	ug/L	1.10	N/A	(0%-20%)			
Iron	5000	B	69.9	5160	ug/L	0.384	102	(0%-20%)			
Magnesium	5000		22200	28900	ug/L	1.30	N/A	(0%-20%)			
Phosphorous	500	B	60.7	564	ug/L	4.08	101	(0%-20%)			
Potassium	5000		9480	15100	ug/L	1.08	112	(0%-20%)			
Silicon	5000		20200	26500	ug/L	0.147	N/A	(0%-20%)			
Sodium	5000		22400	29000	ug/L	0.634	N/A	(0%-20%)			

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1452575										
Vanadium	500	8.38		541	ug/L	0.912	107	(0%-20%)	HSC	01/29/15	20:20
QC1203250606	365668003	SDILT									
Boron	B	22.9	DU	ND	ug/L	N/A		(0%-10%)		01/29/15	20:24
Calcium		109000	D	21100	ug/L	2.82		(0%-10%)			
Iron	B	69.9	DU	ND	ug/L	N/A		(0%-10%)			
Magnesium		22200	D	4380	ug/L	1.41		(0%-10%)			
Phosphorous	B	60.7	DU	ND	ug/L	N/A		(0%-10%)			
Potassium		9480	D	1760	ug/L	7.27		(0%-10%)			
Silicon		20200	D	3960	ug/L	2.03		(0%-10%)			
Sodium		22400	D	4300	ug/L	4.08		(0%-10%)			
Vanadium		8.38	D	1.78	ug/L	6.5		(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

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	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.

General Chem Analysis

Case Narrative

**General Chemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL365663
Work Order #: 365663**

Method/Analysis Information

Product: Ion Chromatography

Analytical Batch: 1452517

Method: 9056_ANIONS_IC: COMMON + GW 02

Sample Analysis

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

Sample ID	Client ID
365663001	B2Y665
1203250455	Method Blank (MB)
1203250456	Laboratory Control Sample (LCS)
1203250457	365668001(B30150) Sample Duplicate (DUP)
1203250458	365668001(B30150) Post Spike (PS)

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

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 23.

Preparation/Analytical Method Verification

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

Calibration Information

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

Initial Calibration

All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks

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

Calibration Verification Information (CCV)

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

acceptance limits.

Y Intercept Rule

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

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Sample365668001 (B30150) was selected for QC analysis.

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

The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement

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

Technical Information

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

Holding Times

All samples in this SDG met the specified holding time.

Sample Dilutions

Samples 1203250457 (Non SDG 365668001DUP), 1203250458 (Non SDG 365668001PS) and 365663001 (B2Y665) were diluted because target analyte concentrations exceeded the calibration range. The following samples in this sample group were diluted due to matrix interference. 1203250457 (Non SDG 365668001DUP), 1203250458 (Non SDG 365668001PS) and 365663001 (B2Y665).

Analyte	365663
	001
Chloride	20X
Nitrate	20X
Sulfate	20X

Sample Re-analysis

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

Miscellaneous Information

Data Exception (DER) Documentation

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced

SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations

Samples 1203250457 (Non SDG 365668001DUP), 1203250458 (Non SDG 365668001PS) and 365663001 (B2Y665) were manually integrated to correctly position the baseline as set in the calibration standards.

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: n-Hexane Extractable Material
Analytical Batch: 1457021
Method: EPA 1664A n-Hexane Extractable Material (Oil and Grease)

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 1664A/1664B:

Sample ID	Client ID
365663002	B2Y664
1203262875	Method Blank (MB)
1203262876	Laboratory Control Sample (LCS)
1203262877	Laboratory Control Sample Duplicate (LCSD)
1203262878	365663002(B2Y664) 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-094 REV# 13.

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 Oil & Grease analysis was performed on a Sartorius Balance BAL745. Oil and Grease 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.

LCS/LCSD Relative Percent Difference (RPD) Statement

The RPD between the LCS and LCSD met the acceptance limits.

Quality Control (QC) Designation

Sample365663002 (B2Y664) 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.

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.

Sample Aliquot

Per EPA methodology, the entire sample was used for the 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: Alkalinity
Analytical Batch: 1454936 **Method:** 2320_ALKALINITY: COMMON (Alkalinity only)

Sample Analysis

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

Sample ID	Client ID
365663002	B2Y664
1203257029	Method Blank (MB)
1203257031	Laboratory Control Sample (LCS)
1203257033	365929002(B2YYW9) Sample Duplicate (DUP)
1203257035	365929002(B2YYW9) 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

Sample365929002 (B2YYW9) 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

50mL of sample was used due to limited quantity. 1203257033 (Non SDG 365929002DUP) and 1203257035 (Non SDG 365929002MS).

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.

February 20, 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: GEL365663 GEL Work Order: 365663

The Qualifiers in this report are defined as follows:

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

D Results are reported from a diluted aliquot of sample.

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

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:

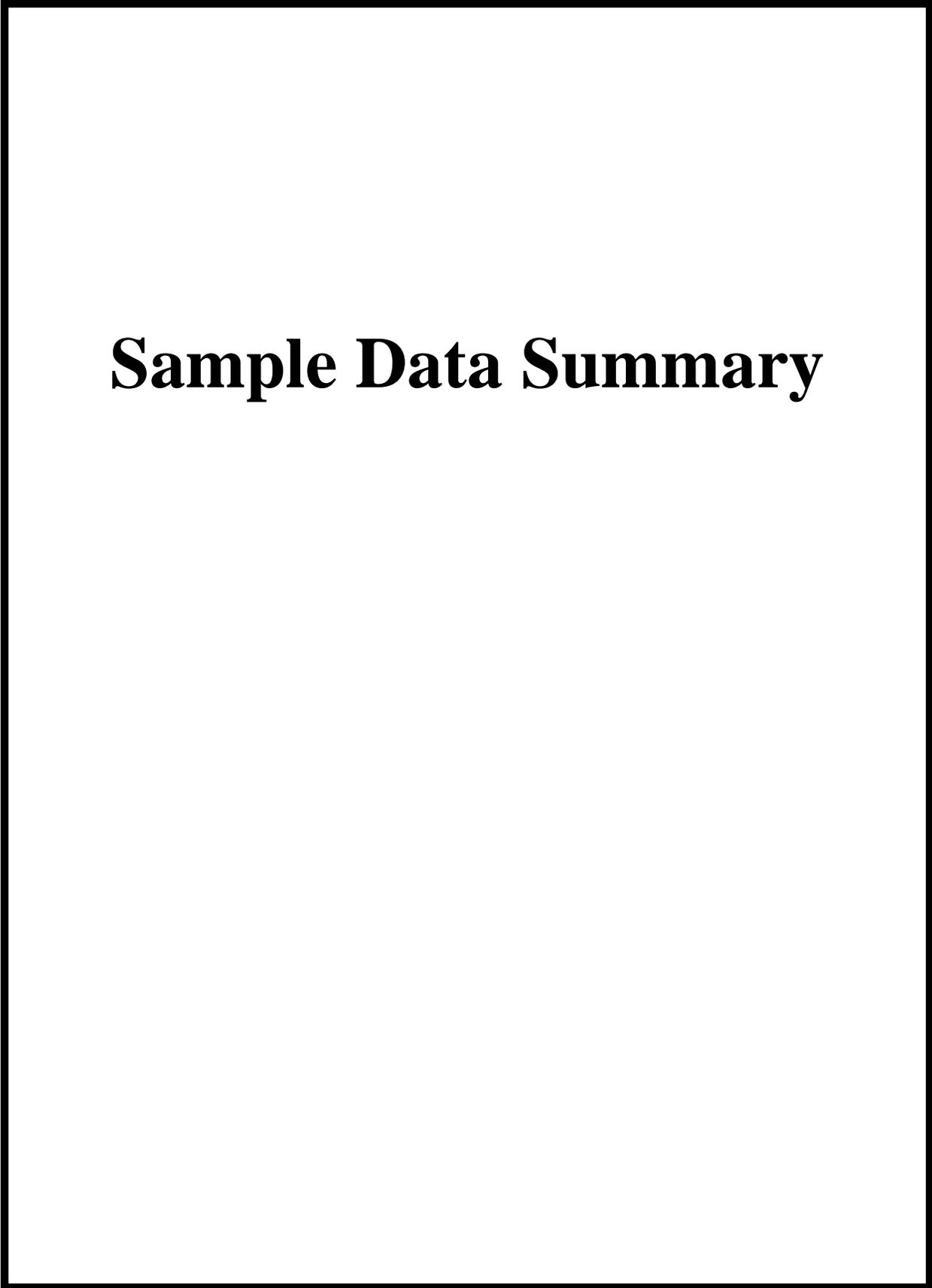
Signature:



Name: Thomas Lewis

Date: 19 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 X15-007**

Report Date: February 19, 2015

Client Sample ID:	B2Y665	Project:	CPRC0X15007
Sample ID:	365663001	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	21-JAN-15 13:29		
Receive Date:	23-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Ion Chromatography										
<i>9056_ANIONS_IC: COMMON + GW 02 "As Received"</i>										
Bromide 24959-67-9		257	+/-23.9	67.0	250	ug/L	1	MXL201/23/15 1346	1452517	1
Fluoride 16984-48-8	U	29.3	+/-11.0	33.0	500	ug/L	1			
Nitrite-N 14797-65-0	U	0.00	+/-12.7	38.0	250	ug/L	1			
Phosphorus in phosphate PO4-P	U	0.00	+/-22.3	67.0	500	ug/L	1			
Chloride 16887-00-6	D	29300	+/-1070	1340	4000	ug/L	20	MXL201/23/15 1452	1452517	2
Nitrate-N 14797-55-8	D	18500	+/-656	660	2000	ug/L	20			
Sulfate 14808-79-8	D	114000	+/-3900	2660	8000	ug/L	20			

The following Analytical Methods were performed

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

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF X15-007**

Report Date: February 19, 2015

Client Sample ID:	B2Y664	Project:	CPRC0X15007
Sample ID:	365663002	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	21-JAN-15 13:29		
Receive Date:	23-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Oil & Grease Analysis											
<i>EPA 1664A n-Hexane Extractable Material (Oil and Grease) "As Received"</i>											
Oil and Grease	B	1.68	1.39	4.95	mg/L		JXT1	02/11/15	0901	1457021	1
Titration and Ion Analysis											
<i>2320_ALKALINITY: COMMON (Alkalinity only) "As Received"</i>											
Alkalinity, Total as CaCO3		345000	725	1000	ug/L		PXO1	02/04/15	1122	1454936	2
ALKALINITY											

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 1664A/1664B	
2	SM 2320B	

Quality Control Summary

February 20, 2015
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QC Summary

Report Date: February 19, 2015

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CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 365663

<u>Parmname</u>	<u>NOM</u>	<u>Sample</u>	<u>Qual</u>	<u>QC</u>	<u>Units</u>	<u>RPD%</u>	<u>REC%</u>	<u>Range</u>	<u>Anlst</u>	<u>Date</u>	<u>Time</u>
Ion Chromatography											
Batch	1452517										
QC1203250457 365668001 DUP											
Bromide	U	67.0	U	67.0	ug/L	N/A			MXL2	01/23/15	15:24
Chloride		6240		6210	ug/L	0.337		(0%-20%)			
Fluoride	B	158	B	160	ug/L	0.755 ^		(+/-500)			
Nitrate-N	D	3740	D	3780	ug/L	1.09		(0%-20%)		01/23/15	18:41
Nitrite-N	U	38.0	U	38.0	ug/L	N/A				01/23/15	15:24
Phosphorus in phosphate	U	67.0	U	67.0	ug/L	N/A					
Sulfate	D	42100	D	41800	ug/L	0.523		(0%-20%)		01/23/15	18:41
QC1203250456 LCS											
Bromide		1250		1260	ug/L		101	(90%-110%)		01/23/15	13:13
Chloride		5000		4750	ug/L		95	(90%-110%)			
Fluoride		2500		2510	ug/L		100	(90%-110%)			
Nitrate-N		2500		2460	ug/L		98.6	(90%-110%)			
Nitrite-N		2500		2490	ug/L		99.4	(90%-110%)			
Phosphorus in phosphate		1250		1310	ug/L		105	(90%-110%)			
Sulfate		10000		9980	ug/L		99.8	(90%-110%)			
QC1203250455 MB											
Bromide			U	67.0	ug/L					01/23/15	12:41
Chloride			U	67.0	ug/L						
Fluoride			U	33.0	ug/L						
Nitrate-N			U	33.0	ug/L						
Nitrite-N			U	38.0	ug/L						

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QC Summary

Workorder: **365663**

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography											
Batch	1452517										
Phosphorus in phosphate			U	67.0	ug/L				MXL2	01/23/15	12:41
Sulfate			U	133	ug/L						
QC1203250458	365668001	PS									
Bromide	1.25	U	0.0492	1.32	mg/L		102	(90%-110%)		01/23/15	15:57
Chloride	5.00		6.24	11.6	mg/L		107	(90%-110%)			
Fluoride	2.50	B	0.158	2.59	mg/L		97.2	(90%-110%)			
Nitrate-N	2.50	D	0.749	D	3.22	mg/L	99	(90%-110%)		01/23/15	19:14
Nitrite-N	2.50	U	0.00	2.42	mg/L		96.8	(90%-110%)		01/23/15	15:57
Phosphorus in phosphate	1.25	U	0.00	1.14	mg/L		91.3	(90%-110%)			
Sulfate	10.0	D	8.41	D	19.0	mg/L	106	(90%-110%)		01/23/15	19:14
Oil & Grease Analysis											
Batch	1457021										
QC1203262876	LCS										
Oil and Grease	40.0			38.5	mg/L		96.3	(77%-107%)	JXT1	02/11/15	09:01
QC1203262877	LCSD										
Oil and Grease	40.0			38.5	mg/L	0.00	96.3	(0%-24%)		02/11/15	09:01
QC1203262875	MB										
Oil and Grease			U	1.40	mg/L					02/11/15	09:01
QC1203262878	365663002	MS									
Oil and Grease	38.6	B	1.68	34.1	mg/L		83.9	(68%-105%)		02/11/15	09:01
Titration and Ion Analysis											
Batch	1454936										
QC1203257033	365929002	DUP									
Alkalinity, Total as CaCO3			75800	75800	ug/L	0.00		(0%-20%)	PXO1	02/04/15	11:30
QC1203257031	LCS										
Alkalinity, Total as CaCO3	50000			47600	ug/L		95.3	(90%-110%)		02/04/15	10:39
QC1203257029	MB										
Alkalinity, Total as CaCO3			U	725	ug/L					02/04/15	10:39

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QC Summary

Workorder: 365663

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Titration and Ion Analysis											
Batch	1454936										
QC1203257035	365929002	MS									
Alkalinity, Total as CaCO3	100000	75800		168000	ug/L		92.3	(80%-120%)	PXO1	02/04/15	11:31

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

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.