

March 05, 2015

REV 1



PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178

www.gel.com

February 25, 2015

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

Re: CHPRC SAF F15-003
Work Order: 366045
SDG: GEL366045

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on January 29, 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,

A handwritten signature in cursive script that reads "Heather Shaffer".

Heather Shaffer
Project Manager

Purchase Order: 303460 - 9H
Chain of Custody: F15-003-001
Enclosures



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Sample Issue Resolution

SAMPLE ISSUE RESOLUTION

SIR NUM	SDR15-215
REV NUM	0
DATE INITIATED	2/11/2015

SAMPLE EVENT INFORMATION

SAF NUM(S)	F15-003
OPERABLE UNIT(S)	NONE
PROJECT(S)	D&D
SAMPLE EVENT TITLE(S)	2310 Waste Designation
LABORATORY	GEL Laboratories, LLC

SAMPLING INFORMATION

NUMBER OF SAMPLES	1
SAMPLE NUMBERS	B2YT85
SAMPLE MATRIX	
COLLECTION DATE	01/14/2015
SDG NUM	GEL366045

ISSUE BACKGROUND

CLASS	Commercial Shipping Issue
TYPE	Other Shipping Issue (Specify)
DESCRIPTION	Sample B2YT85 was delayed in shipment. GEL received the sample on 1/29. The collection date was 1/14/15 at 09:05. The sample was received out of hold time for the Organics analysis (Pesticides, Herbicides and Volatiles).

DISPOSITION

DESCRIPTION	Proposed Disposition: GEL will proceed with analysis and flag accordingly.
JUSTIFICATION	Accept Proposed Disposition.

SUBMITTED BY: Heather Shaffer DATE: 02/11/2015
 ACCEPTED BY: Scot Fitzgerald DATE: 02/11/2015

Case Narrative

**General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF F15-003
SDG: GEL366045**

February 25, 2015

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt

The sample(s) arrived at GEL Laboratories, LLC, Charleston, South Carolina on January 29, 2015, for analysis. The sample was 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 sample:

Laboratory Identification	Sample Description
366045001	B2YT85

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: GC Semivolatile Herbicide, GC Semivolatile Pesticide, GC/MS Volatile and Metals.

This package, to the best of my knowledge, is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manger (or designee) and the laboratory’s client services representative as verified by their signatures on this report.

March 05, 2015

REV 1

Heather Shaffer

Heather Shaffer
Project Manager

SAMPLE ISSUE RESOLUTION

SIR NUM	SDR15-235
REV NUM	0
DATE INITIATED	3/5/2015

SAMPLE EVENT INFORMATION

SAF NUM(S) F15-003
OPERABLE UNIT(S) NONE
PROJECT(S) D&D
SAMPLE EVENT TITLE(S) 2310 Waste Designation
LABORATORY GEL Laboratories, LLC

SAMPLING INFORMATION

NUMBER OF SAMPLES 1
SAMPLE NUMBERS B2YT85
SAMPLE MATRIX OTHER LIQUID
COLLECTION DATE 1/14/2015 - 1/14/2015
SDG NUM GEL366045

ISSUE BACKGROUND

CLASS Chain of Custody Issue (Field)
TYPE Relinquished/Received Time Do Not Match
DESCRIPTION COC# F15-003-001 has an erroneous received date/time on line 4.

DISPOSITION

DESCRIPTION Document and close
JUSTIFICATION Accepted Disposition: Document and close

SUBMITTED BY: Bruce Hey DATE: 03/03/2015
 ACCEPTED BY: Scot Fitzgerald DATE: 03/05/2015

Chain of Custody and Supporting Documentation

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F15-003-001	PAGE 1 OF 12
COLLECTOR C. Fulton / <i>chfrc</i>	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE	9H
SAMPLING LOCATION Waste spray can at 2310 Shed	PROJECT DESIGNATION Sampling of Spray Can at the 2310 Shed	FIELD LOGBOOK NO. HNF-N 507.31	SAF NO. F15-003	AIR QUALITY	<input type="checkbox"/>
ICE CHEST NO. <i>0034068</i>	ACTUAL SAMPLE DEPTH N/A	OFFSITE PROPERTY NO. N/A	COA 303460	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	BILL OF LADING/AIR BILL NO. <i>772593087908 77272464</i>		None		
MATRIX* A=Air DI=Drum L=Liquid DS=Drum S=Soil O=Oil T=Tissue SE=Sediment V=Vegetation W=Water WI=WIpe X=Other	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.	PRESERVATION Cool <=6C	None	Cool <=6C	None
		HOLDING TIME 14/40 Days	28 Days	28 Days	14 Days
		TYPE OF CONTAINER aG	G/P	aG	G
		NO. OF CONTAINER(S) 1	3	1	1
		VOLUME 125mL	500mL	500mL	500mL
		SAMPLE ANALYSIS 888_L_PEST_GC; COMMON; CH 01; 888_L_PEST_GC; COMMON; CH 01;	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	7470_MERCURY_CV; COMMON (AQUEOUS);	9040_PH_TOXICITY; COMMON; COMMON;
SPECIAL HANDLING AND/OR STORAGE					
SAMPLE NO. B2Y785	MATRIX* OTHER LIQUID	SAMPLE DATE 01-14-15	SAMPLE TIME 0905		

366045

CHAIN OF POSSESSION		SIGN/PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>C. Fulton</i>	DATE/TIME 01-14-15 0905	RECEIVED BY/STORED IN F.M. Hall/CHPRC	DATE/TIME 01-14-15 0905	** The sample bottles could contain pure material. Please handle accordingly to avoid damage to laboratory equipment.	
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME JAN 14 2015	RECEIVED BY/STORED IN SSU-1	DATE/TIME JAN 14 2015	** Analyses are to be conducted in the order listed on the FSR.	
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME JAN 15 2015 0945	RECEIVED BY/STORED IN L.D. Wall / D.D. Wall	DATE/TIME JAN 15 2015 0945	(1) 8151_HERBICIDE_GC; COMMON; 8151_HERBICIDE_GC; CH 01;	
RELINQUISHED BY/REMOVED FROM L.D. Wall / D.D. Wall	DATE/TIME JAN 15 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME JAN 16 2015 1200	(2) 8270_SVOA_GCMS; COMMON; 8270_SVOA_GCMS; CH 01;	
RELINQUISHED BY/REMOVED FROM FEDEX	DATE/TIME JAN 16 2015 1200	RECEIVED BY/STORED IN SSU-1	DATE/TIME JAN 16 2015 1200	(3) 6020_METALS_ICPMS; COMMON {Barium, Cadmium, Chromium, Lead, Selenium, Silver}; 6020_METALS_ICPMS; COMMON (Add-on) {Arsenic};	
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME JAN 16 2015	RECEIVED BY/STORED IN SSU-1	DATE/TIME JAN 16 2015	TRV-14- 192	
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME JAN 27 2015 0940	RECEIVED BY/STORED IN CHPRC	DATE/TIME JAN 27 2015 0940	TITLE	
LABORATORY SECTION	RECEIVED BY	DISPOSED BY		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	



SAMPLE RECEIPT & REVIEW FORM

Client: <u>CPRC</u>		SDG/AR/COC/Work Order: <u>306045</u>	
Received By: <u>CS</u>		Date Received: <u>01/29/15</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"/>

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: Ice bags <u>Blue ice</u> Dry ice None Other (describe) *all temperatures are recorded in Celsius <u>4.1C</u>
2a Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>130532-192</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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
8 Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
12 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14 Carrier and tracking number.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: <u>FedEx Air</u> FedEx Ground UPS Field Services Courier Other <u>7727 3710 0484</u>

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials HS Date 1/29/15 Page 1 of 1

Data Review Qualifier Definitions

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 (843) 556-8171

Report Date: 25-FEB-15

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 >= 2X the MDA and, after corrections, result is >= 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 >= 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 >= 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

March 05, 2015

REV 1

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 (843) 556-8171

Report Date: 25-FEB-15

Project Specific Qualifier Definitions for GEL Client Code: CPRC

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

Laboratory Certifications

List of current GEL Certifications as of 25 February 2015

State	Certification
Alaska	UST-110
Arkansas	88-0651
CLIA	42D0904046
California	2940 Interim
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC000122013-10
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-12-00283, P330-12-00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC000122013-10
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA150001
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC000122013-10
Nebraska	NE-OS-26-13
Nevada	SC000122014-1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68-00485
Plant Material Permit	PDEP-12-00260
South Carolina Chemistry	10120001
South Carolina GVL	23611001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235-15-10
Utah NELAP	SC000122014-16
Vermont	VT87156
Virginia NELAP	460202
Washington	C780-12

Volatile Analysis

Case Narrative

**GC/MS Volatile
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL366045
Work Order #: 366045**

Method/Analysis Information

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

Analytical Method: SW846 8260C

Analytical Batch Number: 1454312

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
366045001	B2YT85
1203255263	Method Blank (MB)
1203255264	Laboratory Control Sample (LCS)
1203255266	366045001(B2YT85) Post Spike (PS)
1203255267	366045001(B2YT85) Post Spike Duplicate (PSD)

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

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

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 21.

Calibration Information

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

Initial Calibration

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

Continuing Calibration Verification Requirements

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

Quality Control (QC) Information**Blank (MB) Statement**

The blank 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 366045001 (B2YT85) was designated for spike analysis.

Matrix Spike/Matrix Spike Duplicate Recovery Statement

The spike and/or spike duplicate 1203255266 (B2YT85PS) and 1203255267 (B2YT85PSD) 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**

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 366045001 (B2YT85) was received from the client beyond the required holding time period.

Sample Preservation and Integrity

The samples were pH 7 at the time of analysis.

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 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: 1378094.

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
VOA3.I	Agilent 6890/5973 GC/MS w/ OI 4560/Archon Autosampler	HP6890/HP5973	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.

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: GEL366045 GEL Work Order: 366045

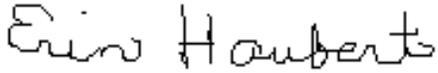
The Qualifiers in this report are defined as follows:

- 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
- 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: 23 FEB 2015

Title: Data Validator

Sample Data Summary

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 F15-003**

Report Date: February 18, 2015

Client Sample ID: B2YT85
 Sample ID: 366045001
 Matrix: OTHER LIQUID
 Collect Date: 14-JAN-15 09:05
 Receive Date: 29-JAN-15
 Collector: Client
 Project: CPRC0F15003
 Client ID: CPRC001

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	UX	0.00	0.300	5.00	ug/L	1	CDS1 01/30/15	1338	1454312	1
1,1,2-Trichloroethane 79-00-5	UX	0.00	0.300	5.00	ug/L	1				
1,1-Dichloroethane 75-34-3	UX	0.00	0.300	10.0	ug/L	1				
1,1-Dichloroethylene 75-35-4	UX	0.00	0.300	10.0	ug/L	1				
1,2-Dichloroethane 107-06-2	UX	0.00	0.300	5.00	ug/L	1				
2-Butanone 78-93-3	UX	0.00	3.00	10.0	ug/L	1				
4-Methyl-2-pentanone 108-10-1	UX	0.00	3.00	10.0	ug/L	1				
Acetone 67-64-1	UX	0.00	3.00	20.0	ug/L	1				
Benzene 71-43-2	UX	0.00	0.300	5.00	ug/L	1				
Carbon disulfide 75-15-0	UX	0.00	1.60	10.0	ug/L	1				
Carbon tetrachloride 56-23-5	TUX	0.00	0.300	5.00	ug/L	1				
Chlorobenzene 108-90-7	UX	0.00	0.300	5.00	ug/L	1				
Chloroform 67-66-3	UX	0.00	0.300	5.00	ug/L	1				
Ethylbenzene 100-41-4	UX	0.00	0.300	5.00	ug/L	1				
Methylene chloride 75-09-2	UX	0.00	1.60	5.00	ug/L	1				
Tetrachloroethylene 127-18-4	UX	0.00	0.300	5.00	ug/L	1				
Toluene 108-88-3	UX	0.00	0.300	5.00	ug/L	1				
Trichloroethylene 79-01-6	UX	0.00	0.300	5.00	ug/L	1				

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Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF F15-003**

Report Date: February 18, 2015

Client Sample ID: B2YT85 Project: CPRC0F15003
 Sample ID: 366045001 Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatile Organics										
<i>8260VOA_GCMS: COMMON "As Received"</i>										
Vinyl chloride 75-01-4	TUX	0.00	0.300	10.0	ug/L	1				
Xylenes (total) 1330-20-7	UX	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"	53.8 ug/L	50.0	108	(77%-123%)
Bromofluorobenzene	8260VOA_GCMS: COMMON "As Received"	52.0 ug/L	50.0	104	(80%-120%)
Toluene-d8	8260VOA_GCMS: COMMON "As Received"	44.4 ug/L	50.0	88.7	(80%-120%)

Quality Control Summary

GEL LABORATORIES LLC

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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: 366045

Parname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS										
Batch	1454312									
QC1203255264	LCS									
1,1,1-Trichloroethane	50.0		57.9	ug/L		116	(70%-130%)	CDS1	01/30/15	06:55
1,1,2-Trichloroethane	50.0		46.3	ug/L		92.6	(70%-130%)			
1,1-Dichloroethane	50.0		49.7	ug/L		99.5	(70%-130%)			
1,1-Dichloroethylene	50.0		53.0	ug/L		106	(70%-130%)			
1,2-Dichloroethane	50.0		54.8	ug/L		110	(70%-130%)			
2-Butanone	250		232	ug/L		92.9	(70%-130%)			
4-Methyl-2-pentanone	250		213	ug/L		85.3	(70%-130%)			
Acetone	250		251	ug/L		101	(70%-130%)			
Benzene	50.0		47.6	ug/L		95.3	(70%-130%)			
Carbon disulfide	250		242	ug/L		96.6	(70%-130%)			
Carbon tetrachloride	50.0		58.8	ug/L		118	(70%-130%)			
Chlorobenzene	50.0		47.5	ug/L		95	(70%-130%)			
Chloroform	50.0		52.7	ug/L		105	(70%-130%)			
Ethylbenzene	50.0		45.9	ug/L		91.7	(70%-130%)			
Methylene chloride	50.0		46.1	ug/L		92.2	(70%-130%)			
Tetrachloroethylene	50.0		45.9	ug/L		91.9	(70%-130%)			
Toluene	50.0		46.5	ug/L		93	(70%-130%)			
Trichloroethylene	50.0		51.2	ug/L		102	(70%-130%)			
Vinyl chloride	50.0		50.6	ug/L		101	(70%-130%)			
Xylenes (total)	150		140	ug/L		93.5	(70%-130%)			

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QC Summary

Workorder: 366045

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454312										
**1,2-Dichloroethane-d4	50.0			46.8	ug/L		93.5	(77%-123%)	CDS1	01/30/15	06:55
**Bromofluorobenzene	50.0			53.0	ug/L		106	(80%-120%)			
**Toluene-d8	50.0			43.4	ug/L		86.8	(80%-120%)			
QC1203255263	MB										
1,1,1-Trichloroethane			U	0.300	ug/L					01/30/15	09:29
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						
Toluene			U	0.300	ug/L						
Trichloroethylene			U	0.300	ug/L						

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QC Summary

Workorder: 366045

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454312										
Vinyl chloride			U	0.300	ug/L				CDS1	01/30/15	09:29
Xylenes (total)			U	0.300	ug/L						
**1,2-Dichloroethane-d4	50.0			47.5	ug/L		95	(77%-123%)			
**Bromofluorobenzene	50.0			48.2	ug/L		96.4	(80%-120%)			
**Toluene-d8	50.0			43.0	ug/L		86	(80%-120%)			
QC1203255266 366045001 PS											
1,1,1-Trichloroethane	50.0	UX	0.00 X	64.2	ug/L		128	(70%-130%)		01/30/15	14:17
1,1,2-Trichloroethane	50.0	UX	0.00 X	47.7	ug/L		95.4	(70%-130%)			
1,1-Dichloroethane	50.0	UX	0.00 X	56.1	ug/L		112	(70%-130%)			
1,1-Dichloroethylene	50.0	UX	0.00 X	60.3	ug/L		121	(70%-130%)			
1,2-Dichloroethane	50.0	UX	0.00 X	54.8	ug/L		110	(70%-130%)			
2-Butanone	250	UX	0.00 X	256	ug/L		102	(70%-130%)			
4-Methyl-2-pentanone	250	UX	0.00 X	228	ug/L		91.2	(70%-130%)			
Acetone	250	UX	0.00 X	273	ug/L		109	(70%-130%)			
Benzene	50.0	UX	0.00 X	52.5	ug/L		105	(70%-130%)			
Carbon disulfide	250	UX	0.00 X	279	ug/L		112	(70%-130%)			
Carbon tetrachloride	50.0	TUX	0.00 TX	66.5	ug/L		133*	(70%-130%)			
Chlorobenzene	50.0	UX	0.00 X	51.6	ug/L		103	(70%-130%)			
Chloroform	50.0	UX	0.00 X	57.0	ug/L		114	(70%-130%)			
Ethylbenzene	50.0	UX	0.00 X	52.1	ug/L		104	(70%-130%)			
Methylene chloride	50.0	UX	0.00 X	49.6	ug/L		99.1	(70%-130%)			
Tetrachloroethylene	50.0	UX	0.00 X	53.2	ug/L		106	(70%-130%)			

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QC Summary

Workorder: 366045

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454312										
Toluene	50.0	UX	0.00	X	50.2	ug/L	100	(70%-130%)	CDS1	01/30/15	14:17
Trichloroethylene	50.0	UX	0.00	X	59.7	ug/L	119	(70%-130%)			
Vinyl chloride	50.0	TUX	0.00	X	57.6	ug/L	115	(70%-130%)			
Xylenes (total)	150	UX	0.00	X	150	ug/L	100	(70%-130%)			
**1,2-Dichloroethane-d4	50.0		53.8		47.8	ug/L	95.6	(77%-123%)			
**Bromofluorobenzene	50.0		52.0		56.1	ug/L	112	(80%-120%)			
**Toluene-d8	50.0		44.4		44.1	ug/L	88.2	(80%-120%)			
QC1203255267 366045001 PSD											
1,1,1-Trichloroethane	50.0	UX	0.00	X	61.2	ug/L	4.79	122	(0%-20%)	01/30/15	14:48
1,1,2-Trichloroethane	50.0	UX	0.00	X	44.8	ug/L	6.34	89.5	(0%-20%)		
1,1-Dichloroethane	50.0	UX	0.00	X	53.8	ug/L	4.24	108	(0%-20%)		
1,1-Dichloroethylene	50.0	UX	0.00	X	56.6	ug/L	6.45	113	(0%-20%)		
1,2-Dichloroethane	50.0	UX	0.00	X	53.3	ug/L	2.79	107	(0%-20%)		
2-Butanone	250	UX	0.00	X	243	ug/L	5.11	97.2	(0%-20%)		
4-Methyl-2-pentanone	250	UX	0.00	X	216	ug/L	5.30	86.5	(0%-20%)		
Acetone	250	UX	0.00	X	278	ug/L	1.68	111	(0%-20%)		
Benzene	50.0	UX	0.00	X	48.6	ug/L	7.69	97.2	(0%-20%)		
Carbon disulfide	250	UX	0.00	X	267	ug/L	4.41	107	(0%-20%)		
Carbon tetrachloride	50.0	TUX	0.00	X	65.2	ug/L	1.98	130	(0%-20%)		
Chlorobenzene	50.0	UX	0.00	X	48.1	ug/L	7.00	96.2	(0%-20%)		
Chloroform	50.0	UX	0.00	X	53.2	ug/L	6.77	106	(0%-20%)		
Ethylbenzene	50.0	UX	0.00	X	47.6	ug/L	8.97	95.2	(0%-20%)		

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QC Summary

Workorder: 366045

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454312										
Methylene chloride	50.0	UX	0.00	X	46.9	ug/L	5.47	93.8	(0%-20%)	CDS1	01/30/15 14:48
Tetrachloroethylene	50.0	UX	0.00	X	47.3	ug/L	11.7	94.6	(0%-20%)		
Toluene	50.0	UX	0.00	X	47.1	ug/L	6.48	94.1	(0%-20%)		
Trichloroethylene	50.0	UX	0.00	X	57.2	ug/L	4.38	114	(0%-20%)		
Vinyl chloride	50.0	TUX	0.00	TX	68.7	ug/L	17.5	137*	(0%-20%)		
Xylenes (total)	150	UX	0.00	X	144	ug/L	4.38	95.9	(0%-20%)		
**1,2-Dichloroethane-d4	50.0		53.8		48.1	ug/L		96.2	(77%-123%)		
**Bromofluorobenzene	50.0		52.0		53.4	ug/L		107	(80%-120%)		
**Toluene-d8	50.0		44.4		43.4	ug/L		86.7	(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.
- 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)

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QC Summary

Workorder: 366045

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

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. 02-FEB-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: 1454312	Sample Numbers: See Below		
<p>Potentially affected work order(s)(SDG): 366045(GEL366045)</p> <p>Application Issues: Failed Recovery for MS/MSD, or PS/PSD Sample received out of holding Failed Recovery for PS/PSD</p>			
Specification and Requirements Exception Description:		DER Disposition:	
<ol style="list-style-type: none"> 1. The sample was received outside of holding time. 2. The recovery for Carbon tetrachloride was outside of acceptance limits in the matrix spike performed on this sample. The calculated relative percent differences between the MS and MSD were within acceptance limits for all client requested compounds. 3. The recovery for Vinyl chloride was outside of acceptance limits in the matrix spike duplicate performed on this sample. The calculated relative percent differences between the MS and MSD were within acceptance limits for all client requested compounds. 		<ol style="list-style-type: none"> 1. Narrate and report data. 2,3. Narrate and report data. The matrix spike/matrix spike duplicate pair was reanalyzed with similar recovery results. 	

Originator's Name:
Crystal Stacey 02-FEB-15

Data Validator/Group Leader:
Kelle Bellamy 17-FEB-15

Pesticide Analysis

Case Narrative

**GC Semivolatile Pesticide
 Technical Case Narrative
 CH2MHill Plateau Remediation Company (CPRC)
 SDG #: GEL366045
 Work Order #: 366045**

Method/Analysis Information

Procedure: Organochlorine Pesticides and Chlorinated Hydrocarbons
 Analytical Method: SW846 3535A/8081B
 Prep Method: SW846 3535A
 Analytical Batch Number: 1455726
 Prep Batch Number: 1455725

Sample Analysis

Sample ID	Client ID
366045001	B2YT85
1203259152	MB for batch 1455725
1203259153	Laboratory Control Sample (LCS)
1203259154	Laboratory Control Sample Duplicate (LCSD)

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-041 REV# 13.

Raw data reports are processed and reviewed by the analyst using ChemStation software. False positives have been removed from the ChemStation 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.

Initial Calibration

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

Continuing Calibration Verification (CCV) Requirements

The associated calibration verification standards (ICV or CCV) did not meet the acceptance criteria.

One of the five quantified peaks did not meet the acceptance criteria in Toxaphene standard analyzed for this SDG; however, the average concentration of the five peaks met the acceptance criteria.

The CCV standard bracketing the samples in this SDG recovered above the acceptance limits for several target analytes; however, this had no adverse effects on the data as the target analytes were not detected in the associated environmental samples.

All analytes were 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 analytical batch for this SDG.

Laboratory Control Sample (LCS) Recovery

The laboratory control sample duplicate (LCSD) recovered above the acceptance limits for several spiked analytes; however, this had no adverse effects on the data as the target analytes were not detected in the associated environmental samples.

LCS/LCSD Relative Percent Difference (RPD) Statement

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

QC Sample Designation

Matrix spike and matrix spike duplicate analyses were not performed on a sample in this batch for this SDG.

Technical Information:

Holding Time Specifications

Sample 366045001 (B2YT85) was received from the client out of holding.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP. All reported analyte detections in client and quality control samples were within the established retention time windows.

Sample Dilutions

The samples in this SDG in this analytical 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.

Florisil

Florisil clean-up was not performed on client and quality control samples in this batch.

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. DER #1379993 was generated for the samples in this batch for this SDG.

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 pesticide 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 following additional comments were required:

Detected target analytes were reported from the analytical column with the higher concentration. Results below the method detection limit (non-detects) were reported from column one.

Due to software issue, the surrogate recovery range was not indicated or possibly indicated incorrectly in Quantitation Report. Please see Surrogate Recovery Report for correct surrogate recovery acceptance limits.

Due to rounding differences in the calculation between the forms, the data reported in Sample Summary (form 1) and Spike Recovery Report (form 3) may differ slightly from the data reported in Identification Summary (form 10).

System Configuration

The Semi-Volatiles-Pesticide analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
ECD7A.I_1	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7673 Autosampler	HP6890 Series ECD	Rtx-CLP I	30m x 0.25mm, 0.25um (Rtx-CLPesticide I)
ECD7A.I_2	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7673 Autosampler	HP6890 Series ECD	Rtx-CLP II	30m x 0.25mm, 0.20um (Rtx-CLPesticide II)

Certification Statement

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

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**Qualifier Definition Report
for**

CPRC001 CH2MHill Plateau Remediation Company
Client SDG: GEL366045 GEL Work Order: 366045

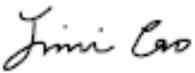
The Qualifiers in this report are defined as follows:

- 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
- 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
- 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: 20 FEB 2015

Title: Data Validator

Sample Data Summary

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 F15-003**

Report Date: February 9, 2015

Client Sample ID: B2YT85
 Sample ID: 366045001
 Matrix: OTHER LIQUID
 Collect Date: 14-JAN-15 09:05
 Receive Date: 29-JAN-15
 Collector: Client
 Project: CPRC0F15003
 Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Semi-Volatiles-Pesticide										
<i>SW846 3535A/8081B 8081_PEST_GC:COMMON&CH01 "As Received"</i>										
4,4'-DDD 72-54-8	UX	0.00	0.100	0.400	ug/L	1	LOF	02/06/15	1555	1455726 1
4,4'-DDE 72-55-9	UX	0.00	0.100	0.400	ug/L	1				
4,4'-DDT 50-29-3	UX	0.00	0.100	0.400	ug/L	1				
Aldrin 309-00-2	UX	0.00	0.0665	0.200	ug/L	1				
Dieldrin 60-57-1	UX	0.00	0.100	0.400	ug/L	1				
Endosulfan I 959-98-8	UX	0.00	0.0665	0.200	ug/L	1				
Endosulfan II 33213-65-9	UX	0.00	0.100	0.400	ug/L	1				
Endosulfan sulfate 1031-07-8	UX	0.00	0.100	0.400	ug/L	1				
Endrin 72-20-8	UX	0.00	0.100	0.400	ug/L	1				
Endrin aldehyde 7421-93-4	UX	0.00	0.0665	0.400	ug/L	1				
Endrin ketone 53494-70-5	UX	0.00	0.100	0.400	ug/L	1				
Heptachlor 76-44-8	UX	0.00	0.0665	0.200	ug/L	1				
Heptachlor epoxide 1024-57-3	UX	0.00	0.0665	0.200	ug/L	1				
Methoxychlor 72-43-5	UX	0.00	0.500	2.00	ug/L	1				
Toxaphene 8001-35-2	UX	0.00	1.50	5.00	ug/L	1				
alpha-BHC 319-84-6	UX	0.00	0.0665	0.200	ug/L	1				
alpha-Chlordane 5103-71-9	UX	0.00	0.0665	0.200	ug/L	1				
beta-BHC 319-85-7	UX	0.00	0.0665	0.200	ug/L	1				

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Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF F15-003**

Report Date: February 9, 2015

Client Sample ID: B2YT85 Project: CPRC0F15003
 Sample ID: 366045001 Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-Pesticide											
<i>SW846 3535A/8081B 8081_PEST_GC:COMMON&CH01 "As Received"</i>											
delta-BHC	UX	0.00	0.0665	0.200	ug/L	1					
319-86-8											
gamma-BHC (Lindane)	UX	0.00	0.0665	0.200	ug/L	1					
58-89-9											
gamma-Chlordane	UX	0.00	0.0665	0.500	ug/L	1					
5103-74-2											

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3535A	SW3535A Pesticides SPE Extraction	AXW1	02/05/15	1700	1455725
SW846 3535A	SW3535A Pesticides SPE Extraction	JXS7	02/04/15	1030	1454810

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 3535A/8081B	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3535A/8081B 8081_PEST_GC:COMMON&CH01 "As Received"	8.25 ug/L	10.0	82.5	(32%-111%)
Decachlorobiphenyl	SW846 3535A/8081B 8081_PEST_GC:COMMON&CH01 "As Received"	9.01 ug/L	10.0	90.1	(36%-128%)

Quality Control Summary

GEL LABORATORIES LLC

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QC Summary

Report Date: February 9, 2015

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

Contact: Mr. Scot Fitzgerald

Workorder: 366045

Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatiles-Pesticide										
Batch	1455726									
QC1203259153	LCS									
4,4'-DDD	1.25		1.25	ug/L		100	(46%-128%)	LOF	02/06/15	15:23
4,4'-DDE	1.25		1.03	ug/L		82.4	(48%-116%)			
4,4'-DDT	1.25		1.00	ug/L		80	(49%-128%)			
Aldrin	0.500		0.435	ug/L		86.9	(41%-115%)			
Dieldrin	1.25		1.41	ug/L		113	(50%-122%)			
Endosulfan I	0.500		0.413	ug/L		82.6	(42%-115%)			
Endosulfan II	1.25		1.25	ug/L		100	(43%-121%)			
Endosulfan sulfate	1.25		1.51	ug/L		121	(52%-134%)			
Endrin	1.25		1.54	ug/L		123	(47%-143%)			
Endrin aldehyde	1.25		1.30	ug/L		104	(40%-132%)			
Endrin ketone	1.25		1.40	ug/L		112	(53%-123%)			
Heptachlor	0.500		0.461	ug/L		92.1	(55%-125%)			
Heptachlor epoxide	0.500		0.545	ug/L		109	(54%-126%)			
Methoxychlor	5.00		5.26	ug/L		105	(56%-134%)			
Toxaphene		U	0.150	ug/L			(41%-122%)			
alpha-BHC	0.500		0.537	ug/L		107	(52%-133%)			
alpha-Chlordane	0.500		0.505	ug/L		101	(54%-124%)			
beta-BHC	0.500		0.580	ug/L		116	(53%-128%)			
delta-BHC	0.500		0.636	ug/L		127	(55%-136%)			
gamma-BHC (Lindane)	0.500		0.552	ug/L		110	(52%-132%)			

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QC Summary

Workorder: 366045

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatiles-Pesticide											
Batch	1455726										
gamma-Chlordane	0.500			0.520	ug/L		104	(52%-130%)	LOF	02/06/15	15:23
**4cmx	1.00			0.646	ug/L		64.6	(32%-111%)			
**Decachlorobiphenyl	1.00			1.05	ug/L		105	(36%-128%)			
QC1203259154	LCSD										
4,4'-DDD	1.25			1.41	ug/L	12.1	113	(0%-30%)		02/06/15	15:39
4,4'-DDE	1.25			1.13	ug/L	8.97	90.2	(0%-30%)			
4,4'-DDT	1.25			1.11	ug/L	10.5	88.9	(0%-30%)			
Aldrin	0.500			0.512	ug/L	16.4	102	(0%-30%)			
Dieldrin	1.25			1.57	ug/L	11.0	126*	(0%-30%)			
Endosulfan I	0.500			0.463	ug/L	11.5	92.7	(0%-30%)			
Endosulfan II	1.25			1.37	ug/L	9.19	110	(0%-30%)			
Endosulfan sulfate	1.25			1.68	ug/L	10.9	134	(0%-30%)			
Endrin	1.25			1.73	ug/L	11.3	138	(0%-30%)			
Endrin aldehyde	1.25			1.52	ug/L	15.9	122	(0%-30%)			
Endrin ketone	1.25			1.55	ug/L	9.99	124*	(0%-30%)			
Heptachlor	0.500			0.529	ug/L	13.9	106	(0%-30%)			
Heptachlor epoxide	0.500			0.605	ug/L	10.4	121	(0%-30%)			
Methoxychlor	5.00			5.83	ug/L	10.4	117	(0%-30%)			
Toxaphene			U	0.150	ug/L	N/A		(0%-30%)			
alpha-BHC	0.500			0.604	ug/L	11.8	121	(0%-30%)			
alpha-Chlordane	0.500			0.569	ug/L	11.9	114	(0%-30%)			
beta-BHC	0.500			0.648	ug/L	11.0	130*	(0%-30%)			

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QC Summary

Workorder: 366045

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatiles-Pesticide											
Batch	1455726										
delta-BHC	0.500			0.713	ug/L	11.5	143*	(0%-30%)	LOF	02/06/15	15:39
gamma-BHC (Lindane)	0.500			0.620	ug/L	11.7	124	(0%-30%)			
gamma-Chlordane	0.500			0.589	ug/L	12.4	118	(0%-30%)			
**4cmx	1.00			0.734	ug/L		73.4	(32%-111%)			
**Decachlorobiphenyl	1.00			1.11	ug/L		111	(36%-128%)			
QC1203259152	MB										
4,4'-DDD			U	0.010	ug/L					02/06/15	15:07
4,4'-DDE			U	0.010	ug/L						
4,4'-DDT			U	0.010	ug/L						
Aldrin			U	0.00665	ug/L						
Dieldrin			U	0.010	ug/L						
Endosulfan I			U	0.00665	ug/L						
Endosulfan II			U	0.010	ug/L						
Endosulfan sulfate			U	0.010	ug/L						
Endrin			U	0.010	ug/L						
Endrin aldehyde			U	0.00665	ug/L						
Endrin ketone			U	0.010	ug/L						
Heptachlor			U	0.00665	ug/L						
Heptachlor epoxide			U	0.00665	ug/L						
Methoxychlor			U	0.050	ug/L						
Toxaphene			U	0.150	ug/L						
alpha-BHC			U	0.00665	ug/L						

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QC Summary

Workorder: 366045

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatiles-Pesticide											
Batch	1455726										
alpha-Chlordane			U	0.00665	ug/L				LOF	02/06/15	15:07
beta-BHC			U	0.00665	ug/L						
delta-BHC			U	0.00665	ug/L						
gamma-BHC (Lindane)			U	0.00665	ug/L						
gamma-Chlordane			U	0.00665	ug/L						
**4cmx	1.00			0.665	ug/L		66.5	(32%-111%)			
**Decachlorobiphenyl	1.00			1.00	ug/L		100	(36%-128%)			

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)

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QC Summary

Workorder: 366045

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
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N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

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

* Indicates that a Quality Control parameter was not within specifications.

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

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

Miscellaneous

DATA EXCEPTION REPORT			
Mo.Day Yr. 07-FEB-15	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: GC/ECD	Test / Method: SW846 3535A/8081B	Matrix Type: Liquid	Client Code: CARE, CPRC, HNLK
Batch ID: 1455726	Sample Numbers: See Below		
<p>Potentially affected work order(s)(SDG): 366045(GEL366045),366167,366211(EUI-9865)</p> <p>Application Issues: Sample received out of holding Failed Recovery for LCS/LCSD</p>			
Specification and Requirements Exception Description:		DER Disposition:	
<p>1. CPRC sample 366045001 was received out of holding.</p> <p>2. The 1203259154LCSD recovered several analytes above the upper acceptance limits on one column. Please see the QC Summary/Spike Recovery Report for the specific analytes and associated recoveries.</p>		<p>1. It was collected on 01/14/15 and received on 01/29/15. The last day of holding was 01/28/15.</p> <p>2. Target analytes were not detected in the associated samples. The LCSD passed recoveries on the other column. The data are reported.</p>	

Originator's Name:
Lloyd O Fox 07-FEB-15

Data Validator/Group Leader:
Herbert Maier 09-FEB-15

Herbicide Analysis

Case Narrative

**GC Semivolatile Herbicide
 Technical Case Narrative
 CH2MHill Plateau Remediation Company (CPRC)
 SDG #: GEL366045
 Work Order #: 366045**

Method/Analysis Information

Procedure: Analysis of Chlorophenoxy Acid Herbicides by ECD
 Analytical Method: SW846 8151A
 Prep Method: SW846 8151A
 Analytical Batch Number: 1454139
 Prep Batch Number: 1454137

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8151A:

Sample ID	Client ID
366045001	B2YT85
1203254768	MB for batch 1454137
1203254769	Laboratory Control Sample (LCS)
1203254772	Laboratory Control Sample Duplicate (LCSD)

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-011 REV# 21.

Raw data reports are processed and reviewed by the analyst using 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

The calibration verification standard (ICV or CCV) did not meet acceptance criteria with a positive bias on one or both analytical columns in the standards bracketing the samples in this SDG. As there were no target analytes detected in the associated samples, the data were reported. 366045001 (B2YT85).

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 and LCSD spike recoveries met the acceptance limits.

LCS/LCSD Relative Percent Difference (RPD) Statement

The RPD(s) between the LCS and LCSD met the acceptance limits.

QC Sample Designation

A matrix spike/matrix spike duplicate pair was not extracted and analyzed with this SDG.

Matrix Spike (MS/MSD) Recovery Statement

A matrix spike/matrix spike duplicate pair was not extracted and analyzed with sample 366045001 (B2YT85).

MS/MSD Relative Percent Difference (RPD) Statement

A matrix spike/matrix spike duplicate pair was not extracted and analyzed with sample 366045001 (B2YT85).

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. Sample 366045001 (B2YT85) was collected on 14-JAN-2015 and received by the laboratory on 29-JAN-2015. Upon receipt, the extraction holding time had expired. The sample was extracted and analyzed. The data have been reported and qualified accordingly.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP. All reported analyte detections in client and quality control samples were within the established retention time windows. Reported target analyte concentrations were confirmed on a dissimilar column.

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 in this analytical batch unless confirmations or dilutions were required.

Miscellaneous Information**Electronic Package 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 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.

Data Exception (DER) Documentation

The following DER was generated for sample 366045001 (B2YT85): 1380256.

Manual Integrations

Some initial calibration standards, continuing calibration standards, and/or 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 Herbicide 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 following additional comments were required:

The higher results from either column have been chosen and reported in the data package for the client sample 366045001 (B2YT85), MB and LCS. The data reported for the LCSD are from the same analytical column as the LCS.

Due to rounding differences in the calculation between the forms, the data reported in the Sample Summary (form 1) and Spike Recovery Report (form 3) may differ slightly from the data reported in Identification Summary (form 10).

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.

System Configuration

The Semi-Volatiles-HERB analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
ECD3A.I_1	Agilent 7890A GC with duel uECD	HP6890 Series ECD	Rtx-CLP I	30m x 0.25mm, 0.25um (Rtx-CLPesticide)
ECD3A.I_2	Agilent 7890A GC with duel uECD	HP6890 Series ECD	Rtx-CLP II	30m x 0.25mm, 0.20um (Rtx-CLPesticideII)

Certification Statement

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

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**Qualifier Definition Report
for**

CPRC001 CH2MHill Plateau Remediation Company
Client SDG: GEL366045 GEL Work Order: 366045

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.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- 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: 23 FEB 2015

Title: Data Validator

Sample Data Summary

GEL LABORATORIES LLC

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Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF F15-003**

Report Date: February 10, 2015

Client Sample ID: B2YT85 Project: CPRC0F15003
 Sample ID: 366045001 Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Surrogate/Tracer recovery	Test			Result	Nominal	Recovery%		Acceptable Limits		
2,4-Dichlorophenylacetic acid	8151_HERBICIDE_GC: COMMON + CH01 "As Received"			55.9 ug/L	50.0	112		(40%-138%)		

Quality Control Summary

GEL LABORATORIES LLC

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QC Summary

Report Date: February 10, 2015

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

Contact: Mr. Scot Fitzgerald

Workorder: 366045

Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatiles-HERB										
Batch	1454139									
QC1203254769	LCS									
2,4,5-T	2.00		2.22	ug/L		111	(54%-129%)	LXA1	02/06/15	16:54
2,4,5-TP	2.00		2.17	ug/L		108	(55%-127%)			
2,4-D	2.00		2.12	ug/L		106	(49%-133%)			
2,4-DB	2.00		2.27	ug/L		114	(47%-137%)			
Dalapon	20.0		19.5	ug/L		97.7	(48%-115%)			
Dicamba	2.00		2.06	ug/L		103	(53%-120%)			
Dichlorprop	2.00		2.11	ug/L		106	(52%-117%)			
Dinoseb	2.00		0.930	ug/L		46.5	(32%-99%)			
MCPA	200		194	ug/L		96.8	(45%-117%)			
MCPP	200		199	ug/L		99.6	(42%-115%)			
Pentachlorophenol	2.00		2.03	ug/L		101	(55%-113%)			
**2,4-Dichlorophenylacetic acid	5.00		5.47	ug/L		109	(40%-138%)			
QC1203254772	LCSD									
2,4,5-T	2.00		2.28	ug/L	2.50	114	(0%-30%)		02/06/15	17:14
2,4,5-TP	2.00		2.18	ug/L	0.368	109	(0%-30%)			
2,4-D	2.00		2.22	ug/L	4.81	111	(0%-30%)			
2,4-DB	2.00		2.36	ug/L	3.61	118	(0%-30%)			
Dalapon	20.0		20.7	ug/L	5.71	103	(0%-30%)			
Dicamba	2.00		2.13	ug/L	3.69	107	(0%-30%)			
Dichlorprop	2.00		2.12	ug/L	0.534	106	(0%-30%)			

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QC Summary

Workorder: 366045

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatiles-HERB											
Batch	1454139										
Dinoseb	2.00			1.00	ug/L	7.64	50.2	(0%-30%)			
MCPA	200			201	ug/L	3.77	101	(0%-30%)	LXA1	02/06/15	17:14
MCPP	200			203	ug/L	1.98	102	(0%-30%)			
Pentachlorophenol	2.00			2.09	ug/L	3.26	105	(0%-30%)			
**2,4-Dichlorophenylacetic acid	5.00			5.62	ug/L		112	(40%-138%)			
QC1203254768	MB										
2,4,5-T			U	0.0833	ug/L					02/06/15	16:35
2,4,5-TP			U	0.0833	ug/L						
2,4-D			U	0.0833	ug/L						
2,4-DB			U	0.0923	ug/L						
Dalapon			U	1.67	ug/L						
Dicamba			U	0.0833	ug/L						
Dichlorprop			U	0.0833	ug/L						
Dinoseb			U	0.0833	ug/L						
MCPA			U	16.7	ug/L						
MCPP			U	16.7	ug/L						
Pentachlorophenol			U	0.0833	ug/L						
**2,4-Dichlorophenylacetic acid	5.00			5.47	ug/L		109	(40%-138%)			

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.

GEL LABORATORIES LLC

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QC Summary

Workorder: 366045

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
E	Concentration exceeds the calibration range of the instrument										
J	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate). Value is estimated										
N	Spike Sample recovery is outside control limits.										
P	Aroclor target analyte with greater than 25% difference between column analyses.										
T	Spike and/or spike duplicate sample recovery is outside control limits.										
U	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.										
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Y	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Z	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
o	Analyte failed to recover within LCS limits (Organics only)										

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

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

* Indicates that a Quality Control parameter was not within specifications.

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

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

Miscellaneous

DATA EXCEPTION REPORT			
Mo.Day Yr. 09-FEB-15	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: GC/ECD	Test / Method: SW846 8151A	Matrix Type: Liquid	Client Code: CPRC, ESHL
Batch ID: 1454139	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 365947(2015-720),365979(2015-733),365998(2015-734),366045(GEL366045)			
Application Issues: Failed Recovery for MS/PS Sample received out of holding			
Specification and Requirements Exception Description:		DER Disposition:	
1. The MS(1203254770) did not meet spike recovery acceptance criteria. 2. Sample 366045001 was collected on 14-JAN-2015 and received by the laboratory on 29-JAN-2015.		1. Due to prep error, the MS was inadvertently not spiked. The LCS and LCSD met the acceptance criteria for all spike analytes and all surrogates were within the acceptance criteria for this batch. The data have been reported. 2. Upon receipt, the extraction holding time had expired. The sample was extracted and analyzed. The data have been reported and qualified accordingly.	

Originator's Name:
Lindsey Jensen 09-FEB-15

Data Validator/Group Leader:
Barbara Bailey 10-FEB-15

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL366045
Work Order #: 366045

Sample ID	Client ID
366045001	B2YT85
1203261197	Method Blank (MB)ICP-MS
1203261198	Laboratory Control Sample (LCS)
1203261201	366045001(B2YT85L) Serial Dilution (SD)
1203261199	366045001(B2YT85S) Matrix Spike (MS)
1203261200	366045001(B2YT85SD) Matrix Spike Duplicate (MSD)

Sample Analysis

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

Method/Analysis Information

Analytical Batch:	1456465
Prep Batch :	1456464
Standard Operating Procedures:	GL-MA-E-014 REV# 25 and GL-MA-E-006 REV# 11
Analytical Method:	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 - ICPMS was performed on a PerkinElmer NexION 300X ICPMS. The instrument is equipped with a ESI PFA-ST nebulizer, quadrupole mass spectrometer, dual mode electron multiplier detector, and Kinetic Energy Discrimination (KED) technology. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum.

Calibration Information

Instrument Calibration

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

CRDL/PQL Requirements

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

ICSA/ICSAB Statement

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

Continuing Calibration Blanks (CCB) Requirements

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

Continuing Calibration Verification (CCV) Requirements

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

Quality Control (QC) Information**Method Blank (MB) Statement**

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement

The following sample was selected as the quality control (QC) sample for this SDG: 366045001 (B2YT85).

Matrix Spike (MS/MSD) Recovery Statement

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

MS/MSD Relative Percent Difference (RPD) Statement

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

Serial Dilution % Difference Statement

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

Technical Information**Holding Time Specifications**

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

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

Sample Dilutions

The sample in this SDG did not require dilutions.

Preparation Information

The samples in this SDG were prepared at a ten times dilution factor due to the miscellaneous liquid classification.

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.

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: GEL366045 GEL Work Order: 366045

The Qualifiers in this report are defined as follows:

- * Duplicate analysis not within control limits
- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- D Results are reported from a diluted aliquot of sample.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

Review/Validation

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

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

Signature: 

Name: Jamie Johnson

Date: 25 FEB 2015

Title: Group Leader

Sample Data Summary

Quality Control Summary

GEL LABORATORIES LLC

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QC Summary

Report Date: February 25, 2015

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

Contact: Mr. Scot Fitzgerald

Workorder: 366045

Parname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1456465										
QC1203261198	LCS										
Arsenic	500			537	ug/L		107	(80%-120%)	PRB	02/20/15	21:08
Barium	500			498	ug/L		99.7	(80%-120%)			
Cadmium	500			505	ug/L		101	(80%-120%)			
Chromium	500			501	ug/L		100	(80%-120%)			
Lead	500			507	ug/L		101	(80%-120%)			
Selenium	500			523	ug/L		105	(80%-120%)			
Silver	500			521	ug/L		104	(80%-120%)			
QC1203261197	MB										
Arsenic			U	ND	ug/L					02/20/15	21:05
Barium			U	ND	ug/L						
Cadmium			U	ND	ug/L						
Chromium			U	ND	ug/L						
Lead			U	ND	ug/L						
Selenium			U	ND	ug/L						
Silver			U	ND	ug/L						
QC1203261199	366045001	MS									
Arsenic	500	U	ND	528	ug/L		103	(75%-125%)		02/20/15	21:20
Barium	500		85.5	564	ug/L		95.7	(75%-125%)			
Cadmium	500	B	8.58	519	ug/L		102	(75%-125%)			
Chromium	500	B	25.2	525	ug/L		100	(75%-125%)			
Lead	500		48.3	532	ug/L		96.6	(75%-125%)			

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QC Summary

Workorder: 366045

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1456465										
Selenium	500	U	ND	501	ug/L		100	(75%-125%)	PRB	02/20/15	21:20
Silver	500	B	2.26	523	ug/L		104	(75%-125%)			
QC1203261200 366045001 MSD											
Arsenic	500	U	ND	515	ug/L	2.42	101	(0%-20%)		02/20/15	21:23
Barium	500		85.5	557	ug/L	1.28	94.2	(0%-20%)			
Cadmium	500	B	8.58	519	ug/L	0.0905	102	(0%-20%)			
Chromium	500	B	25.2	509	ug/L	3.12	96.8	(0%-20%)			
Lead	500		48.3	519	ug/L	2.29	94.2	(0%-20%)			
Selenium	500	U	ND	472	ug/L	5.92	94.2	(0%-20%)			
Silver	500	B	2.26	526	ug/L	0.511	105	(0%-20%)			
QC1203261201 366045001 SDILT											
Arsenic		U	ND DU	ND	ug/L	N/A		(0%-10%)		02/20/15	21:28
Barium			8.55 D	1.73	ug/L	1.38		(0%-10%)			
Cadmium		B	0.858 D	0.189	ug/L	10.1		(0%-10%)			
Chromium		B	2.52 DU	ND	ug/L	N/A		(0%-10%)			
Lead			4.83 D	0.974	ug/L	.807		(0%-10%)			
Selenium		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Silver		B	0.226 DU	ND	ug/L	N/A		(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

