GEL Laboratories LLC
a member of The GEL Group INC

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July 14, 2017

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

Re: CHPRC SAF F17-038
Work Order: 426852
SDG: GEL426852

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on July 01, 2017. 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,

B Luthman

Brielle Luthman for
Heather Shaffer
Project Manager

Purchase Order: 304528 - 8C
Chain of Custody: F17-038-002
Enclosures

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Sample Issue Resolution

SAMPLE ISSUE RESOLUTION (SIR) REPORT

SIR Number: SIR17-0789
Rev. Number: 0
Date Initiated: 07/03/2017

SAMPLE EVENT INFORMATION

SAF NUM(S): F17-038

LABORATORY: GEL

SAMPLING INFORMATION

NUMBER OF SAMPLES: 1

SAMPLE NUMBERS: B3BBC2

SAMPLE MATRIX: SOIL

SDG NUM(S):

ISSUE BACKGROUND

CLASS: Field Sampling Issue

TYPE: Broken Sample Bottle

DESCRIPTION: The lid on one container for B3BBC2, 8270_SVOA, was received cracked. No volume was lost.

RESOLUTION

PROPOSED RESOLUTION: Proceed with analysis.

FINAL RESOLUTION: Accept proposed resolution.

SUBMITTED BY:

SHAFFER, H — 07/03/2017

ACCEPTED BY:

NAGEL, SE — 07/03/2017

Case Narrative

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF F17-038
SDG: GEL426852

July 14, 2017

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 July 01, 2017, 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. Please see the enclosed SIR for further details..

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.

Sample Identification
The laboratory received the following sample:

Laboratory Identification	Sample Description
426852001	B3BBC2

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/MS Semivolatile and GC/MS Volatile.

We certify that this package 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.

July 14, 2017

Brielle Luthman for
Heather Shaffer
Project Manager

Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL426852
Work Order #: 426852

GC/MS Volatile

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

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Holding Time Specifications
QC samples 1203830997 (B3BBC2PS) and 1203830998 (B3BBC2PSD) were loaded onto the GC/MS on the last day of holding. They injected after the holding time expired. The parent sample was analyzed within holding. The results are qualified accordingly and reported.

GC/MS Semivolatile

Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS and/or LCSD (See Below) spike recoveries were not within the acceptance limits. The client established the limits of 70%-130%. Failures are expected. The data were reported per client request.

Sample	Analyte	Value
1203825780 (LCS)	Several	See applicable report

MS/MSD Relative Percent Difference (RPD) Statement
The relative percent difference (RPD) between the MS and MSD (See Below) did not meet acceptance limits. As the individual MS and MSD recoveries were within the acceptance limits, the failures had no adverse impact on the reported sample data.

Sample	Analyte	Value
1203825781MS and 1203825782MSD (Non SDG 427197001)	2,4-Dinitrophenol	33* (0.0%-30.0%)
	2-Methyl-4,6-dinitrophenol	45* (0.0%-30.0%)

Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS and/or LCSD (See Below) spike recoveries were not within the acceptance limits. The client established the limits of 70%-130%. Failures are expected. The data were reported per client request.

Sample	Analyte	Value
1203825860 (LCS)	Fluorene	69* (70%-130%)

Miscellaneous Information

Manual Integrations
Sample 1203825862 (B3BBC2MSD) required manual integration in order to properly identify one or more peaks and/or to correctly position the baseline as set in the calibration standard injections.

Diesel Range Organics

Analysis of Diesel Range Organics by Flame Ionization Detector

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria; however, the MB contained low level (below the PQL) of hydrocarbons within Motor Oil range.

Surrogate Recoveries
The surrogate recovery in samples (See Below) was below the client specified acceptance limits but within the laboratory SPC limits.

Sample	Analyte	Value
1203825821 (Non SDG 427197002MS)	o-Terphenyl	51* (60%-140%)
1203825822 (Non SDG 427197002MSD)	o-Terphenyl	56* (60%-140%)

Matrix Spike (MS/MSD) Recovery Statement
The MS spike recovery was slightly below the acceptance limits; however the MSD met spike recovery acceptance criteria and the RPD between the MS and MSD met the acceptance criteria as well.

Sample	Analyte	Value
1203825821 (Non SDG 427197002MS)	Diesel Range Organics and Motor Oil	64* (70%-130%)

Miscellaneous Information

Manual Integrations
Samples 1203825820 (LCS), 1203825821 (Non SDG 427197002MS) and 1203825822 (Non SDG 427197002MSD) required manual integration to correctly position the baseline as set in the calibration standard injections.

Radiochemistry

Dry Weight

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

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.

Chain of Custody and Supporting Documentation

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F17-038-002	PAGE 1 OF 2
COLLECTOR Malcom Chunn CHPRC	**COMPANY CONTACT** LYNCH, SA	**TELEPHONE NO.** 373-5586	**PROJECT COORDINATOR** LYNCH, SA	**PRICE CODE** 8C	**DATA TURNAROUND**
SAMPLING LOCATION C9617, I-001	**PROJECT DESIGNATION** 200-EA-1 OPPORTUNISTIC SAMPLING AT C9617 - SOIL		**SAF NO.** F17-038	**AIR QUALITY** ☐	15 Days / 15 Days
ICE CHEST NO. GWS-560	**FIELD LOGBOOK NO.** ~~HNF-N~~ 645-4	**ACTUAL SAMPLE DEPTH** 35.5 - 38'	**COA** 304528	**METHOD OF SHIPMENT** FEDERAL EXPRESS	**ORIGINAL**
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 8129		**BILL OF LADING/AIR BILL NO.** 7795 33602 8913		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
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.

SPECIAL HANDLING AND/OR STORAGE
~~RADIOACTIVE TIE TO: B3BBC1~~ mac 6/28/17

PRESERVATION	Cool <-7C and >-20C	Cool <=6C	Cool <=6C	Cool <=6C
HOLDING TIME	14 Days	14/40 Days	14/40 Days	14/40 Days
TYPE OF CONTAINER	aGs	aG	aG	G
NO. OF CONTAINER(S)	5	1	1	1
VOLUME	40mL	125mL	125mL	125mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	8270_SVOA_GC MS_SIM: COMMON;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS
SAMPLE NO.	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**				
B3BBC2	SOIL	JUN 29 2017	0935	✓	✓	✓	✓

426852

July 14, 2017

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM Malcom Chunn CHPRC	**DATE/TIME** JUN 29 2017 1050	**RECEIVED BY/STORED IN** SSUH	**DATE/TIME** JUN 29 2017 1050	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM SSUH	**DATE/TIME** JUN 30 2017 0700	**RECEIVED BY/STORED IN** Janelle Zunker CHPRC	**DATE/TIME** JUN 30 2017 0700	
RELINQUISHED BY/REMOVED FROM Janelle Zunker CHPRC	**DATE/TIME** JUN 30 2017 1400	**RECEIVED BY/STORED IN** FEDEX	**DATE/TIME**	
RELINQUISHED BY/REMOVED FROM	**DATE/TIME** FEDEX	**RECEIVED BY/STORED IN** STACY BOONE	**DATE/TIME** 7-1-17 8:45	
RELINQUISHED BY/REMOVED FROM	**DATE/TIME**	**RECEIVED BY/STORED IN**	**DATE/TIME**	
RELINQUISHED BY/REMOVED FROM	**DATE/TIME**	**RECEIVED BY/STORED IN**	**DATE/TIME**	
RELINQUISHED BY/REMOVED FROM	**DATE/TIME**	**RECEIVED BY/STORED IN**	**DATE/TIME**	

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LABORATORY SECTION	**RECEIVED BY**	**TITLE**	**DATE/TIME**
FINAL SAMPLE DISPOSITION	**DISPOSAL METHOD**	**DISPOSED BY**	**DATE/TIME**

PRINTED ON 6/8/2017 **FSR ID = FSR46063** **TRVL NUM = TRVL-17-159** A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F17-038-002	PAGE 2 OF 2
COLLECTOR Malcom Chunn CHPRC	**COMPANY CONTACT** LYNCH, SA	**TELEPHONE NO.** 373-5586	**PROJECT COORDINATOR** LYNCH, SA	**PRICE CODE** 8C	**DATA TURNAROUND**
SAMPLING LOCATION C9617, I-001	**PROJECT DESIGNATION** 200-EA-1 OPPORTUNISTIC SAMPLING AT C9617 - SOIL		**SAF NO.** F17-038	**AIR QUALITY** ☐	15 Days / 15 Days
ICE CHEST NO. GWS-560	**FIELD LOGBOOK NO.** HNF-N- 645-4	**ACTUAL SAMPLE DEPTH** 35.5-38'	**COA** 304528	**METHOD OF SHIPMENT** FEDERAL EXPRESS	**ORIGINAL**
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 8129		**BILL OF LADING/AIR BILL NO.** 7795 3362 8913		

SPECIAL INSTRUCTIONS

TRVL-17-159; ** Analyses are listed in order of priority if reduced sample volume is collected** PAHs by 8270 SIM are to be analyzed in addition to the normal 8270 analysis.** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.** The laboratory is to use one of the low level VOA bottles for moisture content determination.** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1) 5035/8260_VOA: LOW LEVEL: COMMON; 5035/8260_VOA: LOW LEVEL: COMMON (Add-On) {1-Butanol};
(2) 8270_SVOA_GCMS: CH 01 {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4-Dimethylphenol, 2,4-Dinitrophenol, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 2-Chloronaphthalene, 2-Chlorophenol, 2-Methylnaphthalene, 2-Nitroaniline, 3,3'-Dichlorobenzidine, 3-Nitroaniline, 4,6-Dinitro-2-methylphenol, 4-Bromophenylphenyl ether, 4-Chloro-3-methylphenol, 4-Chloroaniline, 4-Chlorophenylphenyl ether, 4-Nitroaniline, 4-Nitrophenol, Bis(2-chloro-1-methylethyl)ether, Bis(2-Chloroethoxy)methane, Bis(2-chloroethyl) ether, Butylbenzylphthalate, Carbazole, Di-n-butylphthalate, Di-n-octylphthalate, Dibenzofuran, Diethylphthalate, Dimethyl phthalate, Hexachlorobenzene, Hexachlorobutadiene, Hexachlorocyclopentadiene, Hexachloroethane, Isophorone, n-Nitrosodi-n-propylamine, Nitrobenzene}; 8270_SVOA_GCMS: COMMON {2,4-Dichlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, Bis(2-ethylhexyl) phthalate, Pentachlorophenol, Phenol};
8270_SVOA_GCMS: COMMON (Add-on) {Tributyl phosphate};
(3) WTPH_DIESEL: COMMON; WTPH_KEROSENE: COMMON; WTPH_MOTOR OIL: COMMON;

July 14, 2017

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SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: N24 216-A29 C-9617

Sampler Initials and Date: MC 6/29/17

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B3BBC2	K	30.0	34.3	4.3
	L	30.1	36.1	6.0
	M	30.1	33.8	3.7
	N	30.1	35.6	5.5
	P	30.0	35.6	5.6

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: CPRC	SDG/AR/COC/Work Order: 426852
Received By: STACY BOONE	Date Received: JULY 1, 2017
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 7795 3362 8913 - 1c 7795 3362 8946 - 1c

Suspected Hazard Information	Yes	No	
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
COC/Samples marked or classified as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
Is package, COC, and/or Samples marked HAZ?		✓	If yes, select Hazards below, and contact the GEL Safety Group. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Wet Ice Ice Packs Dry Ice None Other: *all temperatures are recorded in Celsius TEMP:_____
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR3-17 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed? 7/1/17 SB	✗		✓	Circle Applicable: Seals broken Damaged container Leaking container Other (describe) ID: B3B8C2 LID CRACKED ON 1 SAMPLE
6	Samples requiring chemical preservation at proper pH?	✓			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?	✓			If Yes, Are Encores or Soil Kits present? Yes___ No ✓ (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes No ✓ N/A (If unknown, select No) VOA vials free of headspace? Yes ✓ No___ N/A Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials CS Date 7/3/17 Page 1 of 1

GL-CHL-SR-001 Rev 5

Data Review Qualifier Definitions

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 (843) 556−8171

Report Date: 14−JUL−17

Project Specific Qualifier Definitions for GEL Client Code: CPRC

Qualifier	Qualifier Definition	Department	Fraction
U	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.		
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	Organics	
P	Aroclor target analyte with greater than 25% difference between column analyses.	Organics	
C	Analyte has been confirmed by GC/MS analysis	Organics	Pesticide
B	The analyte was detected in both the associated QC blank and in the sample.	Organics	
E	Concentration exceeds the calibration range of the instrument	Organics	
A	The TIC is a suspected aldol−condensation product	Organics	Semi−Volatile
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
N	Spike Sample recovery is outside control limits.		
*	Duplicate analysis not within control limits	Inorganics	
>	Result greater than quantifiable range or greater than upper limit of the analysis range	General Chemistry	
Z	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
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).	Inorganics	Metals
D	Results are reported from a diluted aliquot of sample.		
E	Reported value is estimated due to interferences. See comment in narrative.	Inorganics	Metals
M	Duplicate precision not met.	Inorganics	Metals
o	Analyte failed to recover within LCS limits (0rganics only)	Organics	
S	Reported value determined by the Method of Standard Additions (MSA)	Inorganics	
T	Spike and/or spike duplicate sample recovery is outside control limits.	Organics	
W	Post−digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.	Inorganics	
B	The associated QC sample blank has a result >= 2X the MDA and, after corrections, result is >= MDA for this sample	Radiological	
Y	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
+	Correlation coefficient for Method of Standard Additions (MSA) is < 0.995	Inorganics	
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).	General Chemistry	
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.	Inorganics	Metals
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.	General Chemistry	
<	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide	General Chemistry	
UX	Gamma Spectroscopy−−Uncertain identification	Radiological	

Laboratory Certifications

List of current GEL Certifications as of 14 July 2017

State	Certification
Alaska	UST−0110
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
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	LA170010
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122017−1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	9904
Pennsylvania NELAP	68−00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−17−12
Utah NELAP	SC000122017−22
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Volatile Analysis

Case Narrative

GC/MS Volatile
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL426852
Work Order #: 426852

Product: **Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method: SW846 5035A/8260C
Analytical Procedure: GL-OA-E-038 REV# 26
Analytical Batch: 1681390

Preparation Method: SW846 5035A
Preparation Procedure: GL-OA-E-039 REV# 11
Preparation Batch: 1681389

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
426852001	B3BBC2
1203828644	Method Blank (MB)
1203828645	Laboratory Control Sample (LCS)
1203830995	Method Blank (MB)
1203830996	Laboratory Control Sample (LCS)
1203830997	426852001(B3BBC2) Post Spike (PS)
1203830998	426852001(B3BBC2) Post Spike Duplicate (PSD)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Calibration Information

Continuing Calibration Verification Requirements
The calibration verification standard requirements were not all met for samples 1203830997 (B3BBC2PS), 1203830998 (B3BBC2PSD) and 426852001 (B3BBC2). Acetone recovered at 30.4%D/drift in the daily CCV analyzed on 7/11/17. Acetone recovered at 37.3%D/drift in the daily CCV analyzed on 7/13/17. There were no positive results for any of the analytes that were outside the calibration criteria. The results are reported.

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. QC samples 1203830997 (B3BBC2PS) and 1203830998 (B3BBC2PSD) were loaded onto the GC/MS on the last day of holding. They injected after the holding time expired. The parent sample was analyzed within holding. The results are qualified accordingly and reported.

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: GEL426852 GEL Work Order: 426852

The Qualifiers in this report are defined as follows:

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.

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: Erin Haubert **Name: Erin Haubert**

Date: 13 JUL 2017 **Title: Data Validator**

Sample Data Summary

Volatile

Certificate of Analysis
Sample Summary

SDG Number:	**GEL426852**	**Date Collected:**	**06/29/2017 09:35**	**Matrix:**	**SOIL**
Lab Sample ID:	**426852001**	**Date Received:**	**07/01/2017 08:45**	**%Moisture:**	**6**
		Client:	**CPRC001**	**Project:**	**CPRC0F17038**
Client ID:	**B3BBC2**	**Method:**	**SW846 5035A/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1681390**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**07/11/2017 17:34**	**Analyst:**	**VXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**07/11/2017 14:55**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**071117V3\3L213.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.319	ug/kg	0.319	2.13
79-34-5	1,1,2,2-Tetrachloroethane	U	0.319	ug/kg	0.319	2.13
79-00-5	1,1,2-Trichloroethane	U	0.319	ug/kg	0.319	2.13
75-34-3	1,1-Dichloroethane	U	0.319	ug/kg	0.319	2.13
75-35-4	1,1-Dichloroethylene	U	0.319	ug/kg	0.319	2.13
107-06-2	1,2-Dichloroethane	U	0.319	ug/kg	0.319	2.13
540-59-0	1,2-Dichloroethylene (total)	U	0.319	ug/kg	0.319	4.26
78-87-5	1,2-Dichloropropane	U	0.319	ug/kg	0.319	2.13
78-93-3	2-Butanone	U	3.19	ug/kg	3.19	10.6
591-78-6	2-Hexanone	U	3.19	ug/kg	3.19	10.6
108-10-1	4-Methyl-2-pentanone	U	3.19	ug/kg	3.19	10.6
67-64-1	Acetone	U	3.19	ug/kg	3.19	10.6
71-43-2	Benzene	U	0.319	ug/kg	0.319	2.13
75-27-4	Bromodichloromethane	U	0.319	ug/kg	0.319	2.13
75-25-2	Bromoform	U	0.319	ug/kg	0.319	2.13
74-83-9	Bromomethane	U	0.319	ug/kg	0.319	2.13
75-15-0	Carbon disulfide	U	1.70	ug/kg	1.70	10.6
56-23-5	Carbon tetrachloride	U	0.319	ug/kg	0.319	2.13
108-90-7	Chlorobenzene	U	0.319	ug/kg	0.319	2.13
75-00-3	Chloroethane	U	0.319	ug/kg	0.319	2.13
67-66-3	Chloroform	U	0.319	ug/kg	0.319	2.13
74-87-3	Chloromethane	U	0.319	ug/kg	0.319	2.13
124-48-1	Dibromochloromethane	U	0.319	ug/kg	0.319	2.13
100-41-4	Ethylbenzene	U	0.319	ug/kg	0.319	2.13
75-09-2	Methylene chloride	U	1.70	ug/kg	1.70	5.32
100-42-5	Styrene	U	0.319	ug/kg	0.319	2.13
127-18-4	Tetrachloroethylene	U	0.319	ug/kg	0.319	2.13
108-88-3	Toluene	U	0.319	ug/kg	0.319	2.13
79-01-6	Trichloroethylene	U	0.319	ug/kg	0.319	2.13
75-01-4	Vinyl chloride	U	0.319	ug/kg	0.319	2.13
1330-20-7	Xylenes (total)	U	0.319	ug/kg	0.319	6.39
10061-01-5	cis-1,3-Dichloropropylene	U	0.319	ug/kg	0.319	2.13
71-36-3	n-Butyl alcohol	U	88.7	ug/kg	88.7	266
10061-02-6	trans-1,3-Dichloropropylene	U	0.319	ug/kg	0.319	2.13

Quality Control Summary

GEL LABORATORIES LLC
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QC Summary

Report Date: July 14, 2017

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **426852**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1681390											
QC1203828645 LCS											
1,1,1-Trichloroethane	50.0			47.4	ug/kg		95	(70%-130%)	VXY1	07/11/17	12:57
1,1,2,2-Tetrachloroethane	50.0			50.2	ug/kg		100	(70%-130%)			
1,1,2-Trichloroethane	50.0			47.0	ug/kg		94	(70%-130%)			
1,1-Dichloroethane	50.0			45.3	ug/kg		91	(70%-130%)			
1,1-Dichloroethylene	50.0			42.9	ug/kg		86	(70%-130%)			
1,2-Dichloroethane	50.0			44.7	ug/kg		89	(70%-130%)			
1,2-Dichloroethylene (total)	100			88.2	ug/kg		88	(70%-130%)			
1,2-Dichloropropane	50.0			42.8	ug/kg		86	(70%-130%)			
2-Butanone	250			208	ug/kg		83	(70%-130%)			
2-Hexanone	250			216	ug/kg		86	(70%-130%)			
4-Methyl-2-pentanone	250			198	ug/kg		79	(70%-130%)			
Acetone	250			232	ug/kg		93	(70%-130%)			
Benzene	50.0			44.0	ug/kg		88	(70%-130%)			

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QC Summary

Workorder: **426852**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1681390											
Bromodichloromethane	50.0			49.0	ug/kg		98	(70%-130%)	VXY1	07/11/17	12:57
Bromoform	50.0			48.0	ug/kg		96	(70%-130%)			
Bromomethane	50.0			51.1	ug/kg		102	(70%-130%)			
Carbon disulfide	250			198	ug/kg		79	(70%-130%)			
Carbon tetrachloride	50.0			45.7	ug/kg		91	(70%-130%)			
Chlorobenzene	50.0			44.3	ug/kg		89	(70%-130%)			
Chloroethane	50.0			47.7	ug/kg		95	(70%-130%)			
Chloroform	50.0			45.0	ug/kg		90	(70%-130%)			
Chloromethane	50.0			44.9	ug/kg		90	(70%-130%)			
Dibromochloromethane	50.0			51.3	ug/kg		103	(70%-130%)			
Ethylbenzene	50.0			43.2	ug/kg		86	(70%-130%)			
Methylene chloride	50.0			41.8	ug/kg		84	(70%-130%)			
Styrene	50.0			45.5	ug/kg		91	(70%-130%)			
Tetrachloroethylene	50.0			42.7	ug/kg		85	(70%-130%)			
Toluene	50.0			46.5	ug/kg		93	(70%-130%)			

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QC Summary

Workorder: **426852**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1681390											
Trichloroethylene	50.0			45.8	ug/kg		92	(70%-130%)	VXY1	07/11/17	12:57
Vinyl chloride	50.0			48.5	ug/kg		97	(70%-130%)			
Xylenes (total)	150			132	ug/kg		88	(70%-130%)			
cis-1,3-Dichloropropylene	50.0			48.2	ug/kg		96	(70%-130%)			
n-Butyl alcohol	5000			3850	ug/kg		77	(70%-130%)			
trans-1,3-Dichloropropylene	50.0			49.1	ug/kg		98	(70%-130%)			
**1,2-Dichloroethane-d4	50.0			45.3	ug/L		91	(70%-130%)			
**Bromofluorobenzene	50.0			54.2	ug/L		108	(70%-130%)			
**Toluene-d8	50.0			48.6	ug/L		97	(70%-130%)			
QC1203830996 LCS											
1,1,1-Trichloroethane	50.0			50.3	ug/kg		101	(70%-130%)		07/13/17	21:12
1,1,2,2-Tetrachloroethane	50.0			45.6	ug/kg		91	(70%-130%)			
1,1,2-Trichloroethane	50.0			45.0	ug/kg		90	(70%-130%)			
1,1-Dichloroethane	50.0			46.4	ug/kg		93	(70%-130%)			
1,1-Dichloroethylene	50.0			45.5	ug/kg		91	(70%-130%)			
1,2-Dichloroethane	50.0			45.1	ug/kg		90	(70%-130%)			

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QC Summary

Workorder: **426852**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS										
Batch 1681390										
1,2-Dichloroethylene (total)	100			93.2	ug/kg		93	(70%-130%)	VXY1	07/13/17 21:12
1,2-Dichloropropane	50.0			45.5	ug/kg		91	(70%-130%)		
2-Butanone	250			186	ug/kg		74	(70%-130%)		
2-Hexanone	250			190	ug/kg		76	(70%-130%)		
4-Methyl-2-pentanone	250			195	ug/kg		78	(70%-130%)		
Acetone	250			212	ug/kg		85	(70%-130%)		
Benzene	50.0			45.2	ug/kg		90	(70%-130%)		
Bromodichloromethane	50.0			49.0	ug/kg		98	(70%-130%)		
Bromoform	50.0			44.7	ug/kg		89	(70%-130%)		
Bromomethane	50.0			44.2	ug/kg		88	(70%-130%)		
Carbon disulfide	250			209	ug/kg		84	(70%-130%)		
Carbon tetrachloride	50.0			47.2	ug/kg		94	(70%-130%)		
Chlorobenzene	50.0			45.4	ug/kg		91	(70%-130%)		
Chloroethane	50.0			44.3	ug/kg		89	(70%-130%)		
Chloroform	50.0			47.3	ug/kg		95	(70%-130%)		

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QC Summary

Workorder: **426852**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1681390											
Chloromethane	50.0			39.3	ug/kg		79	(70%-130%)	VXY1	07/13/17	21:12
Dibromochloromethane	50.0			50.0	ug/kg		100	(70%-130%)			
Ethylbenzene	50.0			44.2	ug/kg		88	(70%-130%)			
Methylene chloride	50.0			43.8	ug/kg		88	(70%-130%)			
Styrene	50.0			46.1	ug/kg		92	(70%-130%)			
Tetrachloroethylene	50.0			44.4	ug/kg		89	(70%-130%)			
Toluene	50.0			46.9	ug/kg		94	(70%-130%)			
Trichloroethylene	50.0			46.5	ug/kg		93	(70%-130%)			
Vinyl chloride	50.0			40.7	ug/kg		81	(70%-130%)			
Xylenes (total)	150			135	ug/kg		90	(70%-130%)			
cis-1,3-Dichloropropylene	50.0			47.0	ug/kg		94	(70%-130%)			
n-Butyl alcohol	5000			3870	ug/kg		77	(70%-130%)			
trans-1,3-Dichloropropylene	50.0			49.2	ug/kg		98	(70%-130%)			
**1,2-Dichloroethane-d4	50.0			41.7	ug/L		83	(70%-130%)			
**Bromofluorobenzene	50.0			54.0	ug/L		108	(70%-130%)			

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QC Summary

Workorder: **426852**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1681390											
**Toluene-d8	50.0			46.5	ug/L		93	(70%-130%)	VXY1	07/13/17	21:12
QC1203828644 MB											
1,1,1-Trichloroethane			U	0.300	ug/kg					07/11/17	15:00
1,1,2,2-Tetrachloroethane			U	0.300	ug/kg						
1,1,2-Trichloroethane			U	0.300	ug/kg						
1,1-Dichloroethane			U	0.300	ug/kg						
1,1-Dichloroethylene			U	0.300	ug/kg						
1,2-Dichloroethane			U	0.300	ug/kg						
1,2-Dichloroethylene (total)			U	0.300	ug/kg						
1,2-Dichloropropane			U	0.300	ug/kg						
2-Butanone			U	3.00	ug/kg						
2-Hexanone			U	3.00	ug/kg						
4-Methyl-2-pentanone			U	3.00	ug/kg						
Acetone			U	3.00	ug/kg						
Benzene			U	0.300	ug/kg						
Bromodichloromethane			U	0.300	ug/kg						

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QC Summary

Workorder: **426852**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1681390											
Bromoform			U	0.300	ug/kg				VXY1	07/11/17	15:00
Bromomethane			U	0.300	ug/kg						
Carbon disulfide			U	1.60	ug/kg						
Carbon tetrachloride			U	0.300	ug/kg						
Chlorobenzene			U	0.300	ug/kg						
Chloroethane			U	0.300	ug/kg						
Chloroform			U	0.300	ug/kg						
Chloromethane			U	0.300	ug/kg						
Dibromochloromethane			U	0.300	ug/kg						
Ethylbenzene			U	0.300	ug/kg						
Methylene chloride			U	1.60	ug/kg						
Styrene			U	0.300	ug/kg						
Tetrachloroethylene			U	0.300	ug/kg						
Toluene			U	0.300	ug/kg						
Trichloroethylene			U	0.300	ug/kg						

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QC Summary

Workorder: **426852**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1681390											
Vinyl chloride			U	0.300	ug/kg				VXY1	07/11/17	15:00
Xylenes (total)			U	0.300	ug/kg						
cis-1,3-Dichloropropylene			U	0.300	ug/kg						
n-Butyl alcohol			U	83.3	ug/kg						
trans-1,3-Dichloropropylene			U	0.300	ug/kg						
**1,2-Dichloroethane-d4	50.0			50.1	ug/L		100	(70%-130%)			
**Bromofluorobenzene	50.0			51.1	ug/L		102	(70%-130%)			
**Toluene-d8	50.0			49.8	ug/L		100	(70%-130%)			
QC1203830995 MB											
1,1,1-Trichloroethane			U	0.300	ug/kg					07/13/17	23:15
1,1,2,2-Tetrachloroethane			U	0.300	ug/kg						
1,1,2-Trichloroethane			U	0.300	ug/kg						
1,1-Dichloroethane			U	0.300	ug/kg						
1,1-Dichloroethylene			U	0.300	ug/kg						
1,2-Dichloroethane			U	0.300	ug/kg						
1,2-Dichloroethylene (total)			U	0.300	ug/kg						

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QC Summary

Workorder: **426852**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS										
Batch 1681390										
1,2-Dichloropropane			U	0.300	ug/kg				VXY1	07/13/17 23:15
2-Butanone			U	3.00	ug/kg					
2-Hexanone			U	3.00	ug/kg					
4-Methyl-2-pentanone			U	3.00	ug/kg					
Acetone			U	3.00	ug/kg					
Benzene			U	0.300	ug/kg					
Bromodichloromethane			U	0.300	ug/kg					
Bromoform			U	0.300	ug/kg					
Bromomethane			U	0.300	ug/kg					
Carbon disulfide			U	1.60	ug/kg					
Carbon tetrachloride			U	0.300	ug/kg					
Chlorobenzene			U	0.300	ug/kg					
Chloroethane			U	0.300	ug/kg					
Chloroform			U	0.300	ug/kg					
Chloromethane			U	0.300	ug/kg					

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QC Summary

Workorder: **426852**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS										
Batch 1681390										
Dibromochloromethane			U	0.300	ug/kg				VXY1	07/13/17 23:15
Ethylbenzene			U	0.300	ug/kg					
Methylene chloride			U	1.60	ug/kg					
Styrene			U	0.300	ug/kg					
Tetrachloroethylene			U	0.300	ug/kg					
Toluene			U	0.300	ug/kg					
Trichloroethylene			U	0.300	ug/kg					
Vinyl chloride			U	0.300	ug/kg					
Xylenes (total)			U	0.300	ug/kg					
cis-1,3-Dichloropropylene			U	0.300	ug/kg					
n-Butyl alcohol			U	83.3	ug/kg					
trans-1,3-Dichloropropylene			U	0.300	ug/kg					
**1,2-Dichloroethane-d4	50.0			44.8	ug/L		90	(70%-130%)		
**Bromofluorobenzene	50.0			49.2	ug/L		98	(70%-130%)		
**Toluene-d8	50.0			49.0	ug/L		98	(70%-130%)		

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QC Summary

Workorder: **426852**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS											
Batch 1681390											
QC1203830997 426852001 PS											
1,1,1-Trichloroethane	50.0	U	0.00	X	49.0	ug/L		98	(70%-130%)	VXY1	07/14/17 00:17
1,1,2,2-Tetrachloroethane	50.0	U	0.00	X	46.4	ug/L		93	(70%-130%)		
1,1,2-Trichloroethane	50.0	U	0.00	X	46.5	ug/L		93	(70%-130%)		
1,1-Dichloroethane	50.0	U	0.00	X	48.6	ug/L		97	(70%-130%)		
1,1-Dichloroethylene	50.0	U	0.00	X	44.2	ug/L		88	(70%-130%)		
1,2-Dichloroethane	50.0	U	0.00	X	46.0	ug/L		92	(70%-130%)		
1,2-Dichloroethylene (total)	100	U	0.00	X	90.1	ug/L		90	(70%-130%)		
1,2-Dichloropropane	50.0	U	0.00	X	45.3	ug/L		91	(70%-130%)		
2-Butanone	250	U	0.00	X	251	ug/L		101	(70%-130%)		
2-Hexanone	250	U	0.00	X	242	ug/L		97	(70%-130%)		
4-Methyl-2-pentanone	250	U	0.00	X	222	ug/L		89	(70%-130%)		
Acetone	250	U	0.00	X	282	ug/L		113	(70%-130%)		
Benzene	50.0	U	0.00	X	44.0	ug/L		88	(70%-130%)		
Bromodichloromethane	50.0	U	0.00	X	50.8	ug/L		102	(70%-130%)		
Bromoform	50.0	U	0.00	X	44.6	ug/L		89	(70%-130%)		

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QC Summary

Workorder: **426852**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS											
Batch 1681390											
Bromomethane	50.0	U	0.00	X	46.2	ug/L		92	(70%-130%)	VXY1	07/14/17 00:17
Carbon disulfide	250	U	0.00	X	208	ug/L		83	(70%-130%)		
Carbon tetrachloride	50.0	U	0.00	X	44.9	ug/L		90	(70%-130%)		
Chlorobenzene	50.0	U	0.00	X	42.6	ug/L		85	(70%-130%)		
Chloroethane	50.0	U	0.00	X	43.0	ug/L		86	(70%-130%)		
Chloroform	50.0	U	0.00	X	47.4	ug/L		95	(70%-130%)		
Chloromethane	50.0	U	0.00	X	41.9	ug/L		84	(70%-130%)		
Dibromochloromethane	50.0	U	0.00	X	50.4	ug/L		101	(70%-130%)		
Ethylbenzene	50.0	U	0.00	X	41.8	ug/L		84	(70%-130%)		
Methylene chloride	50.0	U	0.00	X	44.7	ug/L		89	(70%-130%)		
Styrene	50.0	U	0.00	X	42.0	ug/L		84	(70%-130%)		
Tetrachloroethylene	50.0	U	0.00	X	41.1	ug/L		82	(70%-130%)		
Toluene	50.0	U	0.00	X	44.6	ug/L		89	(70%-130%)		
Trichloroethylene	50.0	U	0.00	X	47.5	ug/L		95	(70%-130%)		
Vinyl chloride	50.0	U	0.00	X	41.5	ug/L		83	(70%-130%)		

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QC Summary

Workorder: **426852**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS											
Batch 1681390											
Xylenes (total)	150	U	0.00	X	122	ug/L		82	(70%-130%)	VXY1	07/14/17 00:17
cis-1,3-Dichloropropylene	50.0	U	0.00	X	47.9	ug/L		96	(70%-130%)		
n-Butyl alcohol	5000	U	0.00	X	4000	ug/L		80	(70%-130%)		
trans-1,3-Dichloropropylene	50.0	U	0.00	X	48.7	ug/L		97	(70%-130%)		
**1,2-Dichloroethane-d4	50.0		44.3		41.5	ug/L		83	(70%-130%)		
**Bromofluorobenzene	50.0		47.5		53.0	ug/L		106	(70%-130%)		
**Toluene-d8	50.0		48.8		45.6	ug/L		91	(70%-130%)		
QC1203830998 426852001 PSD											
1,1,1-Trichloroethane	50.0	U	0.00	X	48.8	ug/L	0	98	(0%-20%)		07/14/17 00:47
1,1,2,2-Tetrachloroethane	50.0	U	0.00	X	42.2	ug/L	10	84	(0%-20%)		
1,1,2-Trichloroethane	50.0	U	0.00	X	42.8	ug/L	8	86	(0%-20%)		
1,1-Dichloroethane	50.0	U	0.00	X	48.0	ug/L	1	96	(0%-20%)		
1,1-Dichloroethylene	50.0	U	0.00	X	43.0	ug/L	3	86	(0%-20%)		
1,2-Dichloroethane	50.0	U	0.00	X	43.4	ug/L	6	87	(0%-20%)		
1,2-Dichloroethylene (total)	100	U	0.00	X	87.9	ug/L	2	88	(0%-20%)		
1,2-Dichloropropane	50.0	U	0.00	X	42.1	ug/L	7	84	(0%-20%)		

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QC Summary

Workorder: **426852**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS												
Batch 1681390												
2-Butanone	250	U	0.00	X	215	ug/L	16	86	(0%-20%)	VXY1	07/14/17	00:47
2-Hexanone	250	U	0.00	X	205	ug/L	16	82	(0%-20%)			
4-Methyl-2-pentanone	250	U	0.00	X	197	ug/L	12	79	(0%-20%)			
Acetone	250	U	0.00	X	234	ug/L	19	94	(0%-20%)			
Benzene	50.0	U	0.00	X	43.6	ug/L	1	87	(0%-20%)			
Bromodichloromethane	50.0	U	0.00	X	46.4	ug/L	9	93	(0%-20%)			
Bromoform	50.0	U	0.00	X	41.2	ug/L	8	82	(0%-20%)			
Bromomethane	50.0	U	0.00	X	44.4	ug/L	4	89	(0%-20%)			
Carbon disulfide	250	U	0.00	X	207	ug/L	0	83	(0%-20%)			
Carbon tetrachloride	50.0	U	0.00	X	44.7	ug/L	0	89	(0%-20%)			
Chlorobenzene	50.0	U	0.00	X	38.9	ug/L	9	78	(0%-20%)			
Chloroethane	50.0	U	0.00	X	43.6	ug/L	1	87	(0%-20%)			
Chloroform	50.0	U	0.00	X	45.7	ug/L	4	91	(0%-20%)			
Chloromethane	50.0	U	0.00	X	40.2	ug/L	4	80	(0%-20%)			
Dibromochloromethane	50.0	U	0.00	X	46.2	ug/L	9	92	(0%-20%)			

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QC Summary

Workorder: **426852**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS											
Batch 1681390											
Ethylbenzene	50.0	U	0.00	X	37.5	ug/L	11	75	(0%-20%)	VXY1	07/14/17 00:47
Methylene chloride	50.0	U	0.00	X	42.4	ug/L	5	85	(0%-20%)		
Styrene	50.0	U	0.00	X	37.5	ug/L	12	75	(0%-20%)		
Tetrachloroethylene	50.0	U	0.00	X	36.6	ug/L	12	73	(0%-20%)		
Toluene	50.0	U	0.00	X	40.6	ug/L	9	81	(0%-20%)		
Trichloroethylene	50.0	U	0.00	X	44.6	ug/L	6	89	(0%-20%)		
Vinyl chloride	50.0	U	0.00	X	40.5	ug/L	2	81	(0%-20%)		
Xylenes (total)	150	U	0.00	X	108	ug/L	12	72	(0%-20%)		
cis-1,3-Dichloropropylene	50.0	U	0.00	X	42.9	ug/L	11	86	(0%-20%)		
n-Butyl alcohol	5000	U	0.00	X	3810	ug/L	5	76	(0%-20%)		
trans-1,3-Dichloropropylene	50.0	U	0.00	X	45.1	ug/L	8	90	(0%-20%)		
**1,2-Dichloroethane-d4	50.0		44.3		38.7	ug/L		77	(70%-130%)		
**Bromofluorobenzene	50.0		47.5		52.0	ug/L		104	(70%-130%)		
**Toluene-d8	50.0		48.8		43.3	ug/L		87	(70%-130%)		

Notes:

The Qualifiers in this report are defined as follows:

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QC Summary

Workorder: **426852**

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

A The TIC is a suspected aldol-condensation product

B The analyte was detected in both the associated QC blank and in the sample.

C Analyte has been confirmed by GC/MS analysis

D Results are reported from a diluted aliquot of sample.

E Concentration exceeds the calibration range of the instrument

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

N Spike Sample recovery is outside control limits.

P Aroclor target analyte with greater than 25% difference between column analyses.

T Spike and/or spike duplicate sample recovery is outside control limits.

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

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

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

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

o Analyte failed to recover within LCS limits (0rganics 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.

Volatile

Surrogate Recovery Report

SDG Number: GEL426852

Matrix Type: SOLID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203828645	LCS for batch 1681389	91	97	108
1203828644	MB for batch 1681389	100	100	102
426852001	B3BBC2	89	98	95
1203830996	LCS for batch 1681389	83	93	108
1203830995	MB for batch 1681389	90	98	98
1203830997	B3BBC2PS	83	91	106
1203830998	B3BBC2PSD	77	87	104

Surrogate		Acceptance Limits
DCED4	= 1,2-Dichloroethane-d4	(70%-130%)
TOL	= Toluene-d8	(70%-130%)
BFB	= Bromofluorobenzene	(70%-130%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Semi-Volatile Analysis

Case Narrative

GC/MS Semivolatile
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL426852
Work Order #: 426852

Product: **Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
Analytical Method: 8270_SVOA_GCMS
Analytical Procedure: GL-OA-E-009 REV# 39
Analytical Batch: 1680255

Preparation Method: SW846 3541
Preparation Procedure: GL-OA-E-066 REV# 8
Preparation Batch: 1680254

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
426852001	B3BBC2
1203825779	Method Blank (MB)
1203825780	Laboratory Control Sample (LCS)
1203825781	427197001(NonSDG) Matrix Spike (MS)
1203825782	427197001(NonSDG) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS and/or LCSD (See Below) spike recoveries were not within the acceptance limits. The client established the limits of 70%-130%. Failures are expected. The data were reported per client request.

Sample	Analyte	Value
1203825780 (LCS)	Several	See applicable report

MS/MSD Relative Percent Difference (RPD) Statement
The relative percent difference (RPD) between the MS and MSD (See Below) did not meet acceptance limits. As the individual MS and MSD recoveries were within the acceptance limits, the failures had no adverse impact on the reported sample data.

Sample	Analyte	Value
1203825781MS and 1203825782MSD (Non SDG 427197001)	2,4-Dinitrophenol	33* (0.0%-30.0%)
	2-Methyl-4,6-dinitrophenol	45* (0.0%-30.0%)

Product: **Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
Analytical Method: SW846 3541/8270D SIM PAH
Analytical Procedure: GL-OA-E-009 REV# 39
Analytical Batch: 1680293

Preparation Method: SW846 3541
Preparation Procedure: GL-OA-E-066 REV# 8
Preparation Batch: 1680291

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
426852001	B3BBC2
1203825859	Method Blank (MB)
1203825860	Laboratory Control Sample (LCS)
1203825861	426852001(B3BBC2) Matrix Spike (MS)
1203825862	426852001(B3BBC2) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS and/or LCSD (See Below) spike recoveries were not within the acceptance limits. The client established the limits of 70%-130%. Failures are expected. The data were reported per client request.

Sample	Analyte	Value
1203825860 (LCS)	Fluorene	69* (70%-130%)

Miscellaneous Information

Manual Integrations
Sample 1203825862 (B3BBC2MSD) required manual integration in order to properly identify one or more peaks and/or to correctly position the baseline as set in the calibration standard injections.

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: GEL426852 GEL Work Order: 426852

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: Barbara Bailey **Name: Barbara Bailey**

Date: 13 JUL 2017 **Title: Data Validator**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL426852**	**Date Collected:**	**06/29/2017 09:35**	**Matrix:**	**SOIL**
Lab Sample ID:	**426852001**	**Date Received:**	**07/01/2017 08:45**	**%Moisture:**	**6**
		Client:	**CPRC001**	**Project:**	**CPRC0F17038**
Client ID:	**B3BBC2**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1680255**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**07/07/2017 17:28**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**07/07/2017 09:16**	**Aliquot:**	**30.065 g**	**Final Volume:**	**1 mL**
Data File:	**s070717a.B\s1G0712.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
120-82-1	1,2,4-Trichlorobenzene	U	106	ug/kg	106	354
95-50-1	1,2-Dichlorobenzene	U	106	ug/kg	106	354
541-73-1	1,3-Dichlorobenzene	U	106	ug/kg	106	354
106-46-7	1,4-Dichlorobenzene	U	106	ug/kg	106	354
95-95-4	2,4,5-Trichlorophenol	U	106	ug/kg	106	354
120-83-2	2,4-Dichlorophenol	U	106	ug/kg	106	354
105-67-9	2,4-Dimethylphenol	U	106	ug/kg	106	354
51-28-5	2,4-Dinitrophenol	U	106	ug/kg	106	708
121-14-2	2,4-Dinitrotoluene	U	106	ug/kg	106	354
606-20-2	2,6-Dinitrotoluene	U	106	ug/kg	106	354
91-58-7	2-Chloronaphthalene	U	10.6	ug/kg	10.6	35.4
95-57-8	2-Chlorophenol	U	106	ug/kg	106	354
534-52-1	2-Methyl-4,6-dinitrophenol	U	106	ug/kg	106	354
91-57-6	2-Methylnaphthalene	U	10.6	ug/kg	10.6	35.4
88-75-5	2-Nitrophenol	U	106	ug/kg	106	354
91-94-1	3,3'-Dichlorobenzidine	U	106	ug/kg	106	354
101-55-3	4-Bromophenylphenylether	U	106	ug/kg	106	354
59-50-7	4-Chloro-3-methylphenol	U	142	ug/kg	142	354
106-47-8	4-Chloroaniline	U	106	ug/kg	106	354
7005-72-3	4-Chlorophenylphenylether	U	106	ug/kg	106	354
100-02-7	4-Nitrophenol	U	106	ug/kg	106	354
85-68-7	Butylbenzylphthalate	U	106	ug/kg	106	354
86-74-8	Carbazole	U	10.6	ug/kg	10.6	35.4
84-74-2	Di-n-butylphthalate	U	106	ug/kg	106	354
117-84-0	Di-n-octylphthalate	U	106	ug/kg	106	354
132-64-9	Dibenzofuran	U	106	ug/kg	106	354
84-66-2	Diethylphthalate	U	106	ug/kg	106	354
131-11-3	Dimethylphthalate	U	106	ug/kg	106	354
118-74-1	Hexachlorobenzene	U	106	ug/kg	106	354
87-68-3	Hexachlorobutadiene	U	106	ug/kg	106	354
77-47-4	Hexachlorocyclopentadiene	U	106	ug/kg	106	354
67-72-1	Hexachloroethane	U	106	ug/kg	106	354
78-59-1	Isophorone	U	106	ug/kg	106	354
621-64-7	N-Nitrosodipropylamine	U	106	ug/kg	106	354
98-95-3	Nitrobenzene	U	106	ug/kg	106	354
87-86-5	Pentachlorophenol	U	106	ug/kg	106	354
108-95-2	Phenol	U	106	ug/kg	106	354
126-73-8	Tributylphosphate	U	106	ug/kg	106	354

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL426852**	**Date Collected:**	**06/29/2017 09:35**	**Matrix:**	**SOIL**
Lab Sample ID:	**426852001**	**Date Received:**	**07/01/2017 08:45**	**%Moisture:**	**6**
		Client:	**CPRC001**	**Project:**	**CPRC0F17038**
Client ID:	**B3BBC2**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1680255**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**07/07/2017 17:28**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**07/07/2017 09:16**	**Aliquot:**	**30.065 g**	**Final Volume:**	**1 mL**
Data File:	**s070717a.B\s1G0712.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	106	ug/kg	106	354
111-91-1	bis(2-Chloroethoxy)methane	U	106	ug/kg	106	354
111-44-4	bis(2-Chloroethyl) ether	U	106	ug/kg	106	354
117-81-7	bis(2-Ethylhexyl)phthalate	J	143	ug/kg	106	354
99-09-2	m-Nitroaniline	U	106	ug/kg	106	354
95-48-7	o-Cresol	U	106	ug/kg	106	354
88-74-4	o-Nitroaniline	U	117	ug/kg	117	354
100-01-6	p-Nitroaniline	U	106	ug/kg	106	354

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL426852**	**Date Collected:**	**06/29/2017 09:35**	**Matrix:**	**SOIL**
Lab Sample ID:	**426852001**	**Date Received:**	**07/01/2017 08:45**	**%Moisture:**	**6**
		Client:	**CPRC001**	**Project:**	**CPRC0F17038**
Client ID:	**B3BBC2**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1680293**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**07/07/2017 17:50**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**07/07/2017 11:02**	**Aliquot:**	**30.28 g**	**Final Volume:**	**1 mL**
Data File:	**s070717.B\s8g0705.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
83-32-9	Acenaphthene	U	1.76	ug/kg	1.76	3.51
208-96-8	Acenaphthylene	U	1.76	ug/kg	1.76	3.51
120-12-7	Anthracene	J	2.11	ug/kg	1.76	3.51
56-55-3	Benzo(a)anthracene	J	2.81	ug/kg	1.76	3.51
50-32-8	Benzo(a)pyrene	J	2.46	ug/kg	1.76	3.51
205-99-2	Benzo(b)fluoranthene	J	2.81	ug/kg	1.76	3.51
191-24-2	Benzo(ghi)perylene	J	2.11	ug/kg	1.76	3.51
207-08-9	Benzo(k)fluoranthene	J	2.81	ug/kg	1.76	3.51
218-01-9	Chrysene	J	2.46	ug/kg	1.76	3.51
53-70-3	Dibenzo(a,h)anthracene	J	2.46	ug/kg	1.76	3.51
206-44-0	Fluoranthene	J	3.16	ug/kg	1.76	3.51
86-73-7	Fluorene	J	2.11	ug/kg	1.76	3.51
193-39-5	Indeno(1,2,3-cd)pyrene	J	2.11	ug/kg	1.76	3.51
91-20-3	Naphthalene	J	1.76	ug/kg	1.05	3.51
85-01-8	Phenanthrene	J	2.81	ug/kg	1.76	3.51
129-00-0	Pyrene	J	2.46	ug/kg	1.76	3.51

Quality Control Summary

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QC Summary

Report Date: July 10, 2017

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **426852**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch 1680255											
QC1203825780 LCS											
1,2,4-Trichlorobenzene	1670			1190	ug/kg		71	(70%-130%)	JMB3	07/07/17	16:26
1,2-Dichlorobenzene	1670			1110	ug/kg		66*	(70%-130%)			
1,3-Dichlorobenzene	1670			1060	ug/kg		64*	(70%-130%)			
1,4-Dichlorobenzene	1670			1050	ug/kg		63*	(70%-130%)			
2,4,5-Trichlorophenol	1670			1300	ug/kg		78	(70%-130%)			
2,4-Dichlorophenol	1670			1210	ug/kg		73	(70%-130%)			
2,4-Dimethylphenol	1670			1130	ug/kg		68*	(70%-130%)			
2,4-Dinitrophenol	1670			734	ug/kg		44*	(70%-130%)			
2,4-Dinitrotoluene	1670			1290	ug/kg		77	(70%-130%)			
2,6-Dinitrotoluene	1670			1330	ug/kg		80	(70%-130%)			
2-Chloronaphthalene	1670			1070	ug/kg		64*	(70%-130%)			
2-Chlorophenol	1670			1120	ug/kg		67*	(70%-130%)			
2-Methyl-4,6-dinitrophenol	1670			745	ug/kg		45*	(70%-130%)			

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QC Summary

Workorder: **426852**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch 1680255											
2-Methylnaphthalene	1670			1190	ug/kg		71	(70%-130%)	JMB3	07/07/17	16:26
2-Nitrophenol	1670			1160	ug/kg		70	(70%-130%)			
3,3'-Dichlorobenzidine	1670			1390	ug/kg		84	(70%-130%)			
4-Bromophenylphenylether	1670			1310	ug/kg		79	(70%-130%)			
4-Chloro-3-methylphenol	1670			1270	ug/kg		76	(70%-130%)			
4-Chloroaniline	1670			1060	ug/kg		64*	(70%-130%)			
4-Chlorophenylphenylether	1670			1290	ug/kg		78	(70%-130%)			
4-Nitrophenol	1670			1320	ug/kg		79	(70%-130%)			
Butylbenzylphthalate	1670			1350	ug/kg		81	(70%-130%)			
Carbazole	1670			1320	ug/kg		79	(70%-130%)			
Di-n-butylphthalate	1670			1330	ug/kg		80	(70%-130%)			
Di-n-octylphthalate	1670			1400	ug/kg		84	(70%-130%)			
Dibenzofuran	1670			1190	ug/kg		72	(70%-130%)			
Diethylphthalate	1670			1320	ug/kg		79	(70%-130%)			
Dimethylphthalate	1670			1250	ug/kg		75	(70%-130%)			

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QC Summary

Workorder: **426852**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch 1680255											
Hexachlorobenzene	1670			1350	ug/kg		81	(70%-130%)	JMB3	07/07/17	16:26
Hexachlorobutadiene	1670			1250	ug/kg		75	(70%-130%)			
Hexachlorocyclopentadiene	1670			848	ug/kg		51*	(70%-130%)			
Hexachloroethane	1670			1130	ug/kg		68*	(70%-130%)			
Isophorone	1670			1150	ug/kg		69*	(70%-130%)			
N-Nitrosodipropylamine	1670			1080	ug/kg		65*	(70%-130%)			
Nitrobenzene	1670			1210	ug/kg		73	(70%-130%)			
Pentachlorophenol	1670			1190	ug/kg		72	(70%-130%)			
Phenol	1670			1080	ug/kg		65*	(70%-130%)			
Tributylphosphate	1670			1610	ug/kg		97	(70%-130%)			
bis(2-Chloro-1-methylethyl)ether	1670			1060	ug/kg		64*	(70%-130%)			
bis(2-Chloroethoxy)methane	1670			1170	ug/kg		70	(70%-130%)			
bis(2-Chloroethyl) ether	1670			1090	ug/kg		65*	(70%-130%)			
bis(2-Ethylhexyl)phthalate	1670			1420	ug/kg		85	(70%-130%)			
m-Nitroaniline	1670			1240	ug/kg		75	(70%-130%)			

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QC Summary

Workorder: **426852**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch 1680255											
o-Cresol	1670			1140	ug/kg		68*	(70%-130%)	JMB3	07/07/17	16:26
o-Nitroaniline	1670			1220	ug/kg		73	(70%-130%)			
p-Nitroaniline	1670			1280	ug/kg		77	(70%-130%)			
**2,4,6-Tribromophenol	3330			2760	ug/kg		83	(12%-129%)			
**2-Fluorobiphenyl	1670			1190	ug/kg		71	(15%-110%)			
**2-Fluorophenol	3330			2100	ug/kg		63	(10%-115%)			
**Nitrobenzene-d5	1670			1250	ug/kg		75	(13%-112%)			
**Phenol-d5	3330			2280	ug/kg		68	(15%-117%)			
**p-Terphenyl-d14	1670			1500	ug/kg		90	(24%-141%)			
QC1203825779 MB											
1,2,4-Trichlorobenzene			U	100	ug/kg					07/07/17	15:55
1,2-Dichlorobenzene			U	100	ug/kg						
1,3-Dichlorobenzene			U	100	ug/kg						
1,4-Dichlorobenzene			U	100	ug/kg						
2,4,5-Trichlorophenol			U	100	ug/kg						
2,4-Dichlorophenol			U	100	ug/kg						

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QC Summary

Workorder: **426852**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch 1680255											
2,4-Dimethylphenol			U	100	ug/kg				JMB3	07/07/17	15:55
2,4-Dinitrophenol			U	100	ug/kg						
2,4-Dinitrotoluene			U	100	ug/kg						
2,6-Dinitrotoluene			U	100	ug/kg						
2-Chloronaphthalene			U	10.0	ug/kg						
2-Chlorophenol			U	100	ug/kg						
2-Methyl-4,6-dinitrophenol			U	100	ug/kg						
2-Methylnaphthalene			U	10.0	ug/kg						
2-Nitrophenol			U	100	ug/kg						
3,3'-Dichlorobenzidine			U	100	ug/kg						
4-Bromophenylphenylether			U	100	ug/kg						
4-Chloro-3-methylphenol			U	133	ug/kg						
4-Chloroaniline			U	100	ug/kg						
4-Chlorophenylphenylether			U	100	ug/kg						
4-Nitrophenol			U	100	ug/kg						

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QC Summary

Workorder: **426852**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch 1680255											
Butylbenzylphthalate			U	100	ug/kg				JMB3	07/07/17	15:55
Carbazole			U	10.0	ug/kg						
Di-n-butylphthalate			U	100	ug/kg						
Di-n-octylphthalate			U	100	ug/kg						
Dibenzofuran			U	100	ug/kg						
Diethylphthalate			U	100	ug/kg						
Dimethylphthalate			U	100	ug/kg						
Hexachlorobenzene			U	100	ug/kg						
Hexachlorobutadiene			U	100	ug/kg						
Hexachlorocyclopentadiene			U	100	ug/kg						
Hexachloroethane			U	100	ug/kg						
Isophorone			U	100	ug/kg						
N-Nitrosodipropylamine			U	100	ug/kg						
Nitrobenzene			U	100	ug/kg						
Pentachlorophenol			U	100	ug/kg						

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QC Summary

Workorder: 426852

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch 1680255											
Phenol			U	100	ug/kg				JMB3	07/07/17	15:55
Tributylphosphate			U	100	ug/kg						
bis(2-Chloro-1-methylethyl)ether			U	100	ug/kg						
bis(2-Chloroethoxy)methane			U	100	ug/kg						
bis(2-Chloroethyl) ether			U	100	ug/kg						
bis(2-Ethylhexyl)phthalate			U	100	ug/kg						
m-Nitroaniline			U	100	ug/kg						
o-Cresol			U	100	ug/kg						
o-Nitroaniline			U	110	ug/kg						
p-Nitroaniline			U	100	ug/kg						
**2,4,6-Tribromophenol	3330			2730	ug/kg		82	(12%-129%)			
**2-Fluorobiphenyl	1670			1320	ug/kg		79	(15%-110%)			
**2-Fluorophenol	3330			2180	ug/kg		65	(10%-115%)			
**Nitrobenzene-d5	1670			1380	ug/kg		83	(13%-112%)			
**Phenol-d5	3330			2280	ug/kg		69	(15%-117%)			

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QC Summary

Workorder: **426852**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatile-GC/MS										
Batch 1680255										
**p-Terphenyl-d14	1670			1390	ug/kg		84	(24%-141%)	JMB3	07/07/17 15:55
QC1203825781 427197001 MS										
1,2,4-Trichlorobenzene	1690	U	101	1090	ug/kg		64	(26%-104%)		07/07/17 18:30
1,2-Dichlorobenzene	1690	U	101	1010	ug/kg		60	(26%-98%)		
1,3-Dichlorobenzene	1690	U	101	939	ug/kg		56	(27%-92%)		
1,4-Dichlorobenzene	1690	U	101	935	ug/kg		55	(27%-95%)		
2,4,5-Trichlorophenol	1690	U	101	1260	ug/kg		75	(26%-120%)		
2,4-Dichlorophenol	1690	U	101	1150	ug/kg		68	(21%-119%)		
2,4-Dimethylphenol	1690	U	101	1030	ug/kg		61	(27%-111%)		
2,4-Dinitrophenol	1690	U	101	J 542	ug/kg		32	(12%-112%)		
2,4-Dinitrotoluene	1690	U	101	1290	ug/kg		76	(32%-118%)		
2,6-Dinitrotoluene	1690	U	101	1280	ug/kg		76	(32%-114%)		
2-Chloronaphthalene	1690	U	10.1	1060	ug/kg		63	(25%-111%)		
2-Chlorophenol	1690	U	101	1060	ug/kg		63	(20%-114%)		
2-Methyl-4,6-dinitrophenol	1690	U	101	494	ug/kg		29	(17%-115%)		
2-Methylnaphthalene	1690	U	10.1	1140	ug/kg		67	(25%-112%)		

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QC Summary

Workorder: **426852**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS												
Batch 1680255												
2-Nitrophenol	1690	U	101		1080	ug/kg		64	(23%-115%)	JMB3	07/07/17	18:30
3,3'-Dichlorobenzidine	1690	U	101		1060	ug/kg		63	(21%-107%)			
4-Bromophenylphenylether	1690	U	101		1290	ug/kg		76	(29%-121%)			
4-Chloro-3-methylphenol	1690	U	135		1230	ug/kg		73	(29%-119%)			
4-Chloroaniline	1690	U	101		1060	ug/kg		63	(22%-120%)			
4-Chlorophenylphenylether	1690	U	101		1260	ug/kg		75	(29%-119%)			
4-Nitrophenol	1690	U	101		1190	ug/kg		71	(20%-120%)			
Butylbenzylphthalate	1690	U	101		1260	ug/kg		75	(26%-133%)			
Carbazole	1690	U	10.1		1190	ug/kg		71	(27%-123%)			
Di-n-butylphthalate	1690	U	101		1250	ug/kg		74	(26%-126%)			
Di-n-octylphthalate	1690	U	101		1240	ug/kg		74	(29%-130%)			
Dibenzofuran	1690	U	101		1170	ug/kg		69	(30%-119%)			
Diethylphthalate	1690	U	101		1280	ug/kg		75	(26%-124%)			
Dimethylphthalate	1690	U	101		1240	ug/kg		74	(27%-120%)			
Hexachlorobenzene	1690	U	101		1330	ug/kg		79	(30%-113%)			

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QC Summary

Workorder: **426852**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS												
Batch 1680255												
Hexachlorobutadiene	1690	U	101		1140	ug/kg		67	(25%-109%)	JMB3	07/07/17	18:30
Hexachlorocyclopentadiene	1690	U	101		776	ug/kg		46	(10%-100%)			
Hexachloroethane	1690	U	101		1040	ug/kg		62	(23%-98%)			
Isophorone	1690	U	101		1070	ug/kg		63	(29%-107%)			
N-Nitrosodipropylamine	1690	U	101		1050	ug/kg		62	(25%-113%)			
Nitrobenzene	1690	U	101		1120	ug/kg		66	(26%-109%)			
Pentachlorophenol	1690	U	101		1040	ug/kg		61	(17%-119%)			
Phenol	1690	U	101		1050	ug/kg		62	(28%-111%)			
Tributylphosphate	1690	U	101		1540	ug/kg		91	(25%-131%)			
bis(2-Chloro-1-methylethyl)ether	1690	U	101		988	ug/kg		59	(21%-116%)			
bis(2-Chloroethoxy)methane	1690	U	101		1090	ug/kg		65	(30%-111%)			
bis(2-Chloroethyl) ether	1690	U	101		1000	ug/kg		60	(27%-110%)			
bis(2-Ethylhexyl)phthalate	1690	U	101		1340	ug/kg		78	(27%-131%)			
m-Nitroaniline	1690	U	101		1290	ug/kg		76	(24%-137%)			
o-Cresol	1690	U	101		1090	ug/kg		65	(28%-114%)			

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QC Summary

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Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatile-GC/MS											
Batch 1680255											
o-Nitroaniline	1690	U	111		1200	ug/kg		71	(27%-120%)	JMB3	07/07/17 18:30
p-Nitroaniline	1690	U	101		1180	ug/kg		70	(19%-140%)		
**2,4,6-Tribromophenol	3370		2620		2490	ug/kg		74	(12%-129%)		
**2-Fluorobiphenyl	1690		1250		1060	ug/kg		63	(15%-110%)		
**2-Fluorophenol	3370		1850		1850	ug/kg		55	(10%-115%)		
**Nitrobenzene-d5	1690		1150		1050	ug/kg		62	(13%-112%)		
**Phenol-d5	3370		2000		2030	ug/kg		60	(15%-117%)		
**p-Terphenyl-d14	1690		1460		1430	ug/kg		85	(24%-141%)		
QC1203825782 427197001 MSD											
1,2,4-Trichlorobenzene	1690	U	101		1270	ug/kg	16	75	(0%-30%)		07/07/17 19:02
1,2-Dichlorobenzene	1690	U	101		1210	ug/kg	18	72	(0%-30%)		
1,3-Dichlorobenzene	1690	U	101		1140	ug/kg	20	68	(0%-30%)		
1,4-Dichlorobenzene	1690	U	101		1160	ug/kg	21	69	(0%-30%)		
2,4,5-Trichlorophenol	1690	U	101		1380	ug/kg	9	82	(0%-30%)		
2,4-Dichlorophenol	1690	U	101		1330	ug/kg	14	79	(0%-30%)		
2,4-Dimethylphenol	1690	U	101		1180	ug/kg	14	70	(0%-30%)		

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QC Summary

Workorder: **426852**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS												
Batch 1680255												
2,4-Dinitrophenol	1690	U	101		754	ug/kg	33*	45	(0%-30%)	JMB3	07/07/17	19:02
2,4-Dinitrotoluene	1690	U	101		1420	ug/kg	10	84	(0%-30%)			
2,6-Dinitrotoluene	1690	U	101		1430	ug/kg	11	85	(0%-30%)			
2-Chloronaphthalene	1690	U	10.1		1220	ug/kg	14	72	(0%-30%)			
2-Chlorophenol	1690	U	101		1290	ug/kg	19	77	(0%-30%)			
2-Methyl-4,6-dinitrophenol	1690	U	101		783	ug/kg	45*	46	(0%-30%)			
2-Methylnaphthalene	1690	U	10.1		1310	ug/kg	14	78	(0%-30%)			
2-Nitrophenol	1690	U	101		1250	ug/kg	14	74	(0%-30%)			
3,3'-Dichlorobenzidine	1690	U	101		1060	ug/kg	0	63	(0%-30%)			
4-Bromophenylphenylether	1690	U	101		1410	ug/kg	9	84	(0%-30%)			
4-Chloro-3-methylphenol	1690	U	135		1430	ug/kg	15	85	(0%-30%)			
4-Chloroaniline	1690	U	101		1150	ug/kg	8	68	(0%-30%)			
4-Chlorophenylphenylether	1690	U	101		1440	ug/kg	13	85	(0%-30%)			
4-Nitrophenol	1690	U	101		1370	ug/kg	14	82	(0%-30%)			
Butylbenzylphthalate	1690	U	101		1420	ug/kg	12	84	(0%-30%)			

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QC Summary

Workorder: **426852**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS												
Batch 1680255												
Carbazole	1690	U	10.1		1350	ug/kg	12	80	(0%-30%)	JMB3	07/07/17	19:02
Di-n-butylphthalate	1690	U	101		1370	ug/kg	9	81	(0%-30%)			
Di-n-octylphthalate	1690	U	101		1390	ug/kg	12	83	(0%-30%)			
Dibenzofuran	1690	U	101		1330	ug/kg	13	79	(0%-30%)			
Diethylphthalate	1690	U	101		1420	ug/kg	10	84	(0%-30%)			
Dimethylphthalate	1690	U	101		1410	ug/kg	12	83	(0%-30%)			
Hexachlorobenzene	1690	U	101		1440	ug/kg	7	85	(0%-30%)			
Hexachlorobutadiene	1690	U	101		1330	ug/kg	16	79	(0%-30%)			
Hexachlorocyclopentadiene	1690	U	101		883	ug/kg	13	52	(0%-30%)			
Hexachloroethane	1690	U	101		1220	ug/kg	16	72	(0%-30%)			
Isophorone	1690	U	101		1240	ug/kg	15	73	(0%-30%)			
N-Nitrosodipropylamine	1690	U	101		1240	ug/kg	16	73	(0%-30%)			
Nitrobenzene	1690	U	101		1270	ug/kg	13	75	(0%-30%)			
Pentachlorophenol	1690	U	101		1280	ug/kg	21	76	(0%-30%)			
Phenol	1690	U	101		1250	ug/kg	18	74	(0%-30%)			

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QC Summary

Workorder: **426852**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS												
Batch 1680255												
Tributylphosphate	1690	U	101		1710	ug/kg	10	101	(0%-30%)	JMB3	07/07/17	19:02
bis(2-Chloro-1-methylethyl)ether	1690	U	101		1170	ug/kg	17	70	(0%-30%)			
bis(2-Chloroethoxy)methane	1690	U	101		1290	ug/kg	17	76	(0%-30%)			
bis(2-Chloroethyl) ether	1690	U	101		1200	ug/kg	17	71	(0%-30%)			
bis(2-Ethylhexyl)phthalate	1690	U	101		1590	ug/kg	17	93	(0%-30%)			
m-Nitroaniline	1690	U	101		1310	ug/kg	2	77	(0%-30%)			
o-Cresol	1690	U	101		1300	ug/kg	18	77	(0%-30%)			
o-Nitroaniline	1690	U	111		1390	ug/kg	15	83	(0%-30%)			
p-Nitroaniline	1690	U	101		1350	ug/kg	14	80	(0%-30%)			
**2,4,6-Tribromophenol	3370		2620		2680	ug/kg		79	(12%-129%)			
**2-Fluorobiphenyl	1690		1250		1220	ug/kg		73	(15%-110%)			
**2-Fluorophenol	3370		1850		2180	ug/kg		65	(10%-115%)			
**Nitrobenzene-d5	1690		1150		1210	ug/kg		72	(13%-112%)			
**Phenol-d5	3370		2000		2380	ug/kg		71	(15%-117%)			
**p-Terphenyl-d14	1690		1460		1610	ug/kg		96	(24%-141%)			

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QC Summary

Workorder: 426852

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatile-GC/MS										
Batch 1680293										
QC1203825860 LCS										
Acenaphthene	332			241	ug/kg		73	(70%-130%)	JLD1	07/07/17 17:18
Acenaphthylene	332			232	ug/kg		70	(70%-130%)		
Anthracene	332			262	ug/kg		79	(70%-130%)		
Benzo(a)anthracene	332			274	ug/kg		83	(70%-130%)		
Benzo(a)pyrene	332			262	ug/kg		79	(70%-130%)		
Benzo(b)fluoranthene	332			249	ug/kg		75	(70%-130%)		
Benzo(ghi)perylene	332			236	ug/kg		71	(70%-130%)		
Benzo(k)fluoranthene	332			262	ug/kg		79	(70%-130%)		
Chrysene	332			291	ug/kg		88	(70%-130%)		
Dibenzo(a,h)anthracene	332			269	ug/kg		81	(70%-130%)		
Fluoranthene	332			275	ug/kg		83	(70%-130%)		
Fluorene	332			230	ug/kg		69 *	(70%-130%)		
Indeno(1,2,3-cd)pyrene	332			247	ug/kg		74	(70%-130%)		
Naphthalene	332			281	ug/kg		85	(70%-130%)		
Phenanthrene	332			266	ug/kg		80	(70%-130%)		

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QC Summary

Workorder: **426852**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatile-GC/MS										
Batch 1680293										
Pyrene	332			248	ug/kg		75	(70%-130%)	JLD1	07/07/17 17:18
**5-alpha-Androstane	166			131	ug/kg		79	(25%-129%)		
QC1203825859 MB										
Acenaphthene			U	1.66	ug/kg					07/07/17 16:46
Acenaphthylene			U	1.66	ug/kg					
Anthracene			U	1.66	ug/kg					
Benzo(a)anthracene			U	1.66	ug/kg					
Benzo(a)pyrene			U	1.66	ug/kg					
Benzo(b)fluoranthene			U	1.66	ug/kg					
Benzo(ghi)perylene			U	1.66	ug/kg					
Benzo(k)fluoranthene			U	1.66	ug/kg					
Chrysene			U	1.66	ug/kg					
Dibenzo(a,h)anthracene			U	1.66	ug/kg					
Fluoranthene			U	1.66	ug/kg					
Fluorene			U	1.66	ug/kg					
Indeno(1,2,3-cd)pyrene			U	1.66	ug/kg					

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QC Summary

Workorder: 426852

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatile-GC/MS											
Batch 1680293											
Naphthalene				U	0.995	ug/kg				JLD1	07/07/17 16:46
Phenanthrene				U	1.66	ug/kg					
Pyrene				U	1.66	ug/kg					
**5-alpha-Androstane	166				102	ug/kg		61	(25%-129%)		
QC1203825861 426852001 MS											
Acenaphthene	352	U	1.76		230	ug/kg		65	(18%-115%)		07/07/17 18:22
Acenaphthylene	352	U	1.76		222	ug/kg		63	(19%-116%)		
Anthracene	352	J	2.11		248	ug/kg		70	(23%-115%)		
Benzo(a)anthracene	352	J	2.81		259	ug/kg		73	(23%-124%)		
Benzo(a)pyrene	352	J	2.46		256	ug/kg		72	(20%-130%)		
Benzo(b)fluoranthene	352	J	2.81		267	ug/kg		75	(20%-134%)		
Benzo(ghi)perylene	352	J	2.11		198	ug/kg		56	(18%-118%)		
Benzo(k)fluoranthene	352	J	2.81		276	ug/kg		78	(23%-128%)		
Chrysene	352	J	2.46		270	ug/kg		76	(18%-121%)		
Dibenzo(a,h)anthracene	352	J	2.46		230	ug/kg		65	(12%-132%)		
Fluoranthene	352	J	3.16		266	ug/kg		75	(21%-124%)		

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QC Summary

Workorder: **426852**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatile-GC/MS											
Batch 1680293											
Fluorene	352	J	2.11		226	ug/kg		64	(21%-118%)	JLD1	07/07/17 18:22
Indeno(1,2,3-cd)pyrene	352	J	2.11		206	ug/kg		58	(11%-130%)		
Naphthalene	352	J	1.76		274	ug/kg		77	(14%-114%)		
Phenanthrene	352	J	2.81		254	ug/kg		72	(24%-106%)		
Pyrene	352	J	2.46		241	ug/kg		68	(16%-122%)		
**5-alpha-Androstane	176		141		126	ug/kg		72	(25%-129%)		
QC1203825862 426852001 MSD											
Acenaphthene	354	U	1.76		264	ug/kg	14	75	(0%-30%)		07/07/17 18:55
Acenaphthylene	354	U	1.76		252	ug/kg	13	71	(0%-30%)		
Anthracene	354	J	2.11		272	ug/kg	9	76	(0%-30%)		
Benzo(a)anthracene	354	J	2.81		287	ug/kg	10	80	(0%-30%)		
Benzo(a)pyrene	354	J	2.46		276	ug/kg	8	77	(0%-30%)		
Benzo(b)fluoranthene	354	J	2.81		297	ug/kg	11	83	(0%-30%)		
Benzo(ghi)perylene	354	J	2.11		249	ug/kg	23	70	(0%-30%)		
Benzo(k)fluoranthene	354	J	2.81		304	ug/kg	10	85	(0%-30%)		
Chrysene	354	J	2.46		301	ug/kg	11	85	(0%-30%)		

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QC Summary

Workorder: **426852**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS												
Batch 1680293												
Dibenzo(a,h)anthracene	354	J	2.46		301	ug/kg	27	84	(0%-30%)	JLD1	07/07/17	18:55
Fluoranthene	354	J	3.16		288	ug/kg	8	80	(0%-30%)			
Fluorene	354	J	2.11		255	ug/kg	12	72	(0%-30%)			
Indeno(1,2,3-cd)pyrene	354	J	2.11		263	ug/kg	24	74	(0%-30%)			
Naphthalene	354	J	1.76		320	ug/kg	16	90	(0%-30%)			
Phenanthrene	354	J	2.81		274	ug/kg	7	77	(0%-30%)			
Pyrene	354	J	2.46		265	ug/kg	9	74	(0%-30%)			
**5-alpha-Androstane	177		141		138	ug/kg		78	(25%-129%)			

Notes:

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- 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 (0rganics only)

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QC Summary

Workorder: **426852**

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.

Semi-Volatile

Surrogate Recovery Report

SDG Number: **GEL426852**

Matrix Type: **SOLID**

Sample ID	Client ID	5-alpha %REC
1203825859	MB for batch 1680291	61
1203825860	LCS for batch 1680291	79
426852001	B3BBC2	80
1203825861	B3BBC2MS	72
1203825862	B3BBC2MSD	78

Surrogate	Acceptance Limits
5-alpha- = 5-alpha-Androstane	(25%-129%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Surrogate Recovery Report

SDG Number: GEL426852

Matrix Type: SOLID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1203825779	MB for batch 1680254	65	69	83	79	82	84
1203825780	LCS for batch 1680254	63	68	75	71	83	90
426852001	B3BBC2	44	50	58	61	68	80
1203825781	B3B7N8MS	55	60	62	63	74	85
1203825782	B3B7N8MSD	65	71	72	73	79	96

Surrogate		Acceptance Limits
2FP	= 2-Fluorophenol	(10%-115%)
PHL	= Phenol-d5	(15%-117%)
NBZ	= Nitrobenzene-d5	(13%-112%)
FBP	= 2-Fluorobiphenyl	(15%-110%)
TBP	= 2,4,6-Tribromophenol	(12%-129%)
TPH	= p-Terphenyl-d14	(24%-141%)

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

FID Diesel Range Organics Analysis

Case Narrative

Diesel Range Organics
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL426852
Work Order #: 426852

Product: **Analysis of Diesel Range Organics by Flame Ionization Detector**
Analytical Method: WTPH_DIESEL
Analytical Procedure: GL-OA-E-003 REV# 29
Analytical Batch: 1680275

Preparation Method: SW846 3541
Preparation Procedure: GL-OA-E-010 REV# 26
Preparation Batch: 1680274

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
426852001	B3BBC2
1203825819	Method Blank (MB)
1203825820	Laboratory Control Sample (LCS)
1203825821	427197002(NonSDG) Matrix Spike (MS)
1203825822	427197002(NonSDG) Matrix Spike Duplicate (MSD)
1203825823	Laboratory Control Sample (LCS)
1203825824	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria; however, the MB contained low level (below the PQL) of hydrocarbons within Motor Oil range.

Surrogate Recoveries
The surrogate recovery in samples (See Below) was below the client specified acceptance limits but within the laboratory SPC limits.

Sample	Analyte	Value
1203825821 (Non SDG 427197002MS)	o-Terphenyl	51* (60%-140%)
1203825822 (Non SDG 427197002MSD)	o-Terphenyl	56* (60%-140%)

Matrix Spike (MS/MSD) Recovery Statement
The MS spike recovery was slightly below the acceptance limits; however the MSD met spike recovery

acceptance criteria and the RPD between the MS and MSD met the acceptance criteria as well.

Sample	Analyte	Value
1203825821 (Non SDG 427197002MS)	Diesel Range Organics and Motor Oil	64* (70%-130%)

Miscellaneous Information

Manual Integrations
Samples 1203825820 (LCS), 1203825821 (Non SDG 427197002MS) and 1203825822 (Non SDG 427197002MSD) required manual integration to correctly position the baseline as set in the calibration standard injections.

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: GEL426852 GEL Work Order: 426852

The Qualifiers in this report are defined as follows:

B The analyte was detected in both the associated QC blank and in the sample.
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: Jimi Cao **Name: Jimin Cao**

Date: 14 JUL 2017 **Title: Data Validator**

Sample Data Summary

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**GEL426852**	**Date Collected:**	**06/29/2017 09:35**	**Matrix:**	**SOIL**
Lab Sample ID:	**426852001**	**Date Received:**	**07/01/2017 08:45**	**%Moisture:**	**6**
		Client:	**CPRC001**	**Project:**	**CPRC0F17038**
Client ID:	**B3BBC2**	**Method:**	**WTPH_DIESEL**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1680275**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**07/11/2017 18:17**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**07/07/2017 10:04**	**Aliquot:**	**30.04 g**	**Final Volume:**	**1 mL**
Data File:	**071117-KERO-MO\f7Fg1110.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
68334-30-5	Diesel Range Organics	JT	2830	UG/KG	2300	7090
8008-20-6	Kerosene	J	2720	UG/KG	1180	7090
	Motor Oil	BJT	3650	UG/KG	2300	7090

Quality Control Summary

GEL LABORATORIES LLC
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QC Summary

Report Date: July 12, 2017

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **426852**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Diesel Range Organics										
Batch 1680275										
QC1203825820 LCS										
Diesel Range Organics	66600			46900	UG/KG		70	(70%-130%)	LXA1	07/11/17 16:20
Motor Oil	66600		B	52600	UG/KG		79	(70%-130%)		
**o-Terphenyl	666			476	UG/KG		71	(60%-140%)		
QC1203825823 LCS										
Kerosene	33300			24600	UG/KG		74	(70%-130%)		07/11/17 16:59
**o-Terphenyl	666			457	UG/KG		69	(60%-140%)		
QC1203825824 LCSD										
Kerosene	33300			26600	UG/KG	8	80	(0%-30%)		07/11/17 17:38
**o-Terphenyl	666			492	UG/KG		74	(60%-140%)		
QC1203825819 MB										
Diesel Range Organics			U	2160	UG/KG					07/11/17 15:41
Kerosene			U	1110	UG/KG					
Motor Oil			J	2590	UG/KG					
**o-Terphenyl	666			432	UG/KG		65	(60%-140%)		
QC1203825821 427197002 MS										
Diesel Range Organics	68200	JT 2670	T	46400	UG/KG		64*	(70%-130%)		07/11/17 20:54

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QC Summary

Workorder: **426852**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Diesel Range Organics											
Batch 1680275											
Motor Oil	68200	BT	20700	BT	64300	UG/KG		64*	(70%-130%)	LXA1	07/11/17 20:54
**o-Terphenyl	682		343		351	UG/KG		51*	(60%-140%)		
QC1203825822 427197002 MSD											
Diesel Range Organics	68000	JT	2670		51700	UG/KG	11	72	(0%-30%)		07/11/17 21:34
Motor Oil	68000	BT	20700	B	69300	UG/KG	8	71	(0%-30%)		
**o-Terphenyl	680		343		378	UG/KG		56*	(60%-140%)		

Notes:

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- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- o Analyte failed to recover within LCS limits (0rganics only)

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^ 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.

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FID Diesel Range Organics

Surrogate Recovery Report

SDG Number: **GEL426852**

Matrix Type: **SOLID**

Sample ID	Client ID	OTP %REC
1203825819	MB for batch 1680274	65
1203825820	LCS for batch 1680274	71
1203825823	LCS for batch 1680274	69
1203825824	LCSD for batch 1680274	74
426852001	B3BBC2	73
1203825821	B3B7P0MS	51 *
1203825822	B3B7P0MSD	56 *

Surrogate		Acceptance Limits
OTP	= o-Terphenyl	(60%-140%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted