GEL Laboratories LLC
a member of The GEL Group INC

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

gel.com

November 24, 2017

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

Re: CHPRC SAF F17-002
Work Order: 436735
SDG: GEL436735

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on November 01, 2017. This revised data report has been prepared and reviewed in accordance with GEL's standard operating procedures. Per SIR18-0128, this package has been revised to report the requested analyses for sample ID B38W47.

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,

Kaitlyn Stone for
Heather Shaffer
Project Manager

Purchase Order: 304069 - C13
Chain of Custody: F17-002-091, F17-002-092, F17-002-093, F17-002-094, F17-002-095, F17-002-096, F17-002-097, F17-002-098, F17-002-099 and F17-002-100
Enclosures

Table of Contents

Sample Issue Resolution

SAMPLE ISSUE RESOLUTION (SIR) REPORT

SIR Number: SIR18-0128
Rev. Number: 0
Date Initiated: 11/16/2017

SAMPLE EVENT INFORMATION

SAF NUM(S): F17-002

LABORATORY: GEL

SAMPLING INFORMATION

NUMBER OF SAMPLES: 1

SAMPLE NUMBERS: B38W47

SAMPLE MATRIX: SOIL

SDG NUM(S): GEL436735

ISSUE BACKGROUND

CLASS: Sample Management Issues

TYPE: Analyte Correction

DESCRIPTION: COC F17-002-100; Sample B38W47.
The project had requested that Am-241, Pu-Iso, U-Iso and Sr-Tot be removed from the analyses request for all samples associated with 100-K-107/108 and these were not removed from sample B38W47.

RESOLUTION

PROPOSED RESOLUTION: Remove Am-241, Pu-Iso, U-Iso and Sr-Tot results for B38W47 from the data package and re-report.

FINAL RESOLUTION:

SUBMITTED BY:

COFFEY, JJ 11/16/2017

ACCEPTED BY:

NAGEL, SE 11/16/2017

Case Narrative

Per SIR18-0128, this package has been revised to report the requested analyses for sample ID B38W47.

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF F17-002
SDG: GEL436735

November 24, 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 November 01, 2017, for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

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

Sample Identification
The laboratory received the following samples:

Laboratory Identification	Sample Description
436735001	B38W38
436735002	B38W39
436735003	B38W40
436735004	B38W41
436735005	B38W42
436735006	B38W43
436735007	B38W44
436735008	B38W45
436735009	B38W46
436735010	B38W47

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 Pesticide, GC/MS Semivolatile, General Chemistry, Metals and Radiochemistry.

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.

Kaitlyn Stone for
Heather Shaffer
Project Manager

Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL436735
Work Order #: 436735

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
1203910371 (LCS)	Acenaphthene	69* (70%-130%)
	Acenaphthylene	64* (70%-130%)
	Anthracene	66* (70%-130%)
	Benzo(ghi)perylene	62* (70%-130%)
	Fluoranthene	69* (70%-130%)
	Indeno(1, 2, 3-cd)pyrene	66* (70%-130%)
	Pyrene	69* (70%-130%)

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
1203910372MS and 1203910373MSD (B38W40)	Phenanthrene	RPD 57* (0%-30%)

Internal Standard (ISTD) Acceptance
The internal standard response for 1,4-Dichlorobenzene-d4 was outside of the acceptance criteria for samples 436735008 (B38W45), 436735009 (B38W46) and 436735010 (B38W47). Since 1,4-Dichlorobenzene-d4 was not used to quantitate the requested target analytes or surrogates for this batch, the data were not adversely impacted by the failure. The results are reported.

Technical Information

Sample Re-extraction/Re-analysis
The initial analysis for samples 436735008 (B38W45), 436735009 (B38W46) and 436735010 (B38W47) were

outside of the DFTPP TUNE window. The samples were re-analyzed within a new DFTPP TUNE window. The data results are reported from the re-analysis.

Miscellaneous Information

Manual Integrations
Samples (See Below) 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.

Sample	Analyte	Value
1203910372 (B38W40MS)	1, 4-Dichlorobenzene-d4, Acenaphthene-d10, Naphthalene-d8 and Phenanthrene-d10	Result 168ug/kg
1203910373 (B38W40MSD)	1, 4-Dichlorobenzene-d4, Acenaphthene-d10 and Naphthalene-d8	Result 167ug/kg
436735003 (B38W40)	1, 4-Dichlorobenzene-d4, Acenaphthene-d10, Naphthalene-d8 and Phenanthrene-d10	Result 167ug/kg
436735006 (B38W43)	Acenaphthene-d10	Result 142ug/kg
	Indeno(1, 2, 3-cd)pyrene	Result 5.69ug/kg
	Naphthalene-d8	Result 142ug/kg
436735010 (B38W47)	1, 4-Dichlorobenzene-d4, Acenaphthene-d10 and Naphthalene-d8	Result 133ug/kg

GC Semivolatile Pesticide

Organochlorine Pesticides and Chlorinated Hydrocarbons

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 (CCV) Requirements
Calibration verification standards (ICV or CCV) requirements have not been met for samples in this batch in this SDG. One or more target analytes failed acceptance criteria with a positive bias in the standards bracketing the samples in this SDG. These target analytes were not detected above the PQL in the associated environmental samples; therefore, the non-compliance had no adverse effect on the data.

Technical Information

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

Miscellaneous Information

Manual Integrations
Samples 436735003 (B38W40) and 436735008 (B38W45) required manual integration to correctly position the baseline as set in the calibration standard injections.

Additional Comments

The Toxaphene and/or Chlordane standards were analyzed for this SDG as a retention time marker and pattern reference. A five-point calibration curve and calibration verification standard forms were not submitted in the data package since Toxaphene and/or Chlordane were not detected in the client samples.

Metals

Determination of Metals by ICP

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

CRDL/PQL Requirements
The PQL standard recoveries for SW846 6010C or 6010D met the control limits with the exception of zinc. Client sample concentrations were less than the MDL or greater than two times the PQL; therefore the data were not adversely affected. 436735001 (B38W38), 436735002 (B38W39), 436735003 (B38W40), 436735004 (B38W41), 436735005 (B38W42), 436735006 (B38W43), 436735007 (B38W44), 436735008 (B38W45), 436735009 (B38W46) and 436735010 (B38W47).

Quality Control (QC) Information

Method Blank (MB) Statement
The method blanks (MB) analyzed with this SDG met the acceptance criteria. However, where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data.

Sample	Analyte	Value
1203909672 (MB)	Nickel	158 between (136 - 227)

Matrix Spike (MS/MSD) Recovery Statement
The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analyte. The post spike recovery was within the required control limits. This verifies the absence of a matrix interference in the post-spike digested sample. The recovery may be attributed to possible sample matrix interference and/or non-homogeneity.

Sample	Analyte	Value
1203909675 (B38W38MS)	Antimony	74.1* (75%-125%)

Technical Information

Sample Dilutions
Samples were diluted for titanium in order to bring raw values within the linear range of the instrument, and for the analytes interfered with, in order to ensure that the inter-element correction factors were valid. 436735001 (B38W38), 436735002 (B38W39), 436735003 (B38W40), 436735004 (B38W41), 436735005 (B38W42), 436735006 (B38W43), 436735007 (B38W44), 436735008 (B38W45) and 436735009 (B38W46).

Analyte	436735								
	001	**002**	**003**	**004**	**005**	**006**	**007**	**008**	**009**
Several	5X 1X	5X 1X	5X 1X	5X 1X	5X 1X	5X 1X	5X 1X	5X 1X	5X 1X

Determination of Metals by ICP-MS

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

Sample Dilutions
The ICPMS solid samples in this SDG were diluted the standard two times.

Analyte	436735									
	001	**002**	**003**	**004**	**005**	**006**	**007**	**008**	**009**	**010**
All	2X	2X	2X	2X	2X	2X	2X	2X	2X	2X

Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer

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

Sample Dilutions
Sample 436735009 (B38W46) was diluted to ensure that the analyte concentration was within the linear calibration range of the instrument.

Analyte	436735
	009
Mercury	20X

General Chemistry

Ion Chromatography

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.

Miscellaneous Information

Manual Integrations
Samples 1203911269 (B38W46DUP), 1203911270 (B38W47DUP), 1203911271 (B38W46MS), 1203911272 (B38W47MS), 436735001 (B38W38), 436735004 (B38W41), 436735005 (B38W42), 436735006 (B38W43), 436735007 (B38W44), 436735008 (B38W45) and 436735010 (B38W47) were manually integrated to correctly position the baseline as set in the calibration standards.

Hexavalent Chromium

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.

Radiochemistry

PUISO_PRECIP_AEA:COMMON

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

Duplication Criteria between QC Sample and Duplicate Sample
The QC Sample and the Duplicate, (See Below), did not meet the relative percent difference requirement; however, they do meet the relative error ratio requirement with the value listed below.

Sample	Analyte	Value
1203910177 (Non SDG 436596001DUP)	Plutonium-239/240	RPD 44.8* (0.00%-30.00%) RER 1.84 (0-2)

UISO_IE_PRECIP_AEA:COMMON

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

Duplication Criteria between QC Sample and Duplicate Sample
The QC Sample and the Duplicate, (See Below), did not meet the relative percent difference requirement; however, they do meet the relative error ratio requirement with the value listed below.

Sample	Analyte	Value
1203910180 (Non SDG 436596001DUP)	Uranium-238	RPD 54.4* (0.00%-30.00%) RER 1.91 (0-2)

AMCMISO_EIE_PRECIP_AEA: COMMON

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

Duplication Criteria between QC Sample and Duplicate Sample
The QC Sample and Duplicate, (see below), did not meet the duplication criteria listed below due to the non-homogenous matrix of the samples. The RPD does meet the GEL limit of 0%-100%.

Sample	Analyte	Value
1203913003 (Non SDG 436596001DUP)	Americium-241	RPD 69* (0.00%-30.00%) RER 3.01* (0-2)

Technical Information

Sample Re-prep/Re-analysis
Samples were reprepped due to low carrier/tracer yield. The re-analysis is being reported.

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.

GAMMA_GS:COMMON

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.

SRTOT_SEP_PRECIP_GPC: COMMON

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 436735		F17-002-091	PAGE 1 OF 2
COLLECTOR Malcom Chunn CHPRC	**COMPANY CONTACT** NAGEL, SE	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** SUMNER, LC	**REQUIRED TAT** 15 Days
SAMPLING LOCATION 100-K-107/108, IP1	**PROJECT DESIGNATION** 100-K-AF In-Process Sampling - Soil		**SAF NO.** F17-002	ORIGINAL
ICE CHEST NO. GWS-578	**FIELD LOGBOOK NO.** HNF-N-507 38147	**ACTUAL SAMPLE DEPTH** 0-6"	**PURCHASE ORDER/CHARGE CODE** 304306	**METHOD OF SHIPMENT** FEDERAL EXPRESS
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 8657		**BILL OF LADING/AIR BILL NO.** 7706 2999 7020	

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
N/A

PRESERVATION	Cool <=6C	Cool <=6C	None	Cool <=6C	Cool <=6C	None
HOLDING TIME	14/40 Days	14/40 Days	28 Days	30 Days	28 Days/48 Hours	6 Months
TYPE OF CONTAINER	aG	aG	G/P	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1	1	1
VOLUME	250mL	120mL	250mL	120mL	250mL	250mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	8081_PEST_GC: COMMON; 8081_PEST_GC: CH 01;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	7196_CR6: COMMON;	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS
SAMPLE NO.	**FILTERED**	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**							
B38W38	N/A	SOIL	OCT 30 2017	0945	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME	SPECIAL INSTRUCTIONS
Malcom Chunn CHPRC Mpch	OCT 30 2017 1140	SSU-1	OCT 30 2017 1140	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
SSU #1	OCT 31 2017 0800	Lesly Wall /CHPRC Lesly Wall	OCT 31 2017 0800	
Lesly Wall /CHPRC Lesly Wall	OCT 31 2017 1400	FEDEX		
FedEx		SB STACY BOONE	11-1-17 9:00	

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 10/12/2017 | FSR ID = FSR52328 | TRVL NUM = TRVL-18-030 | A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 436735		F17-002-091	PAGE 2 OF 2
COLLECTOR Malcom Chunn CHPRC	**COMPANY CONTACT** NAGEL, SE	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** SUMNER, LC	**REQUIRED TAT** 15 Days
SAMPLING LOCATION 100-K-107/108, IP1	**PROJECT DESIGNATION** 100-K-AF In-Process Sampling - Soil		**SAF NO.** F17-002	ORIGINAL
ICE CHEST NO. GWS-578	**FIELD LOGBOOK NO.** HNF-N-507 38147	**ACTUAL SAMPLE DEPTH** 0-6"	**PURCHASE ORDER/CHARGE CODE** 304306	**METHOD OF SHIPMENT** FEDERAL EXPRESS
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 8657		**BILL OF LADING/AIR BILL NO.** 7706 2999 7020	

SPECIAL INSTRUCTIONS

TRVL-18-030
(1) 8270_SVOA_GCMS_SIM: COMMON {Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(ghi)perylene, Benzo(k)fluoranthene, Chrysene, Dibenz[a,h]anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene};
(2) 7471_MERCURY_CV: COMMON (SOLIDS); 6020_METALS_ICPMS: COMMON {Barium, Cadmium, Chromium, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Silver}; 6010_METALS_ICP: COMMON {Antimony, Arsenic, Cobalt, Copper, Manganese, Nickel, Vanadium, Zinc}; 6010_METALS_ICP: COMMON (Add-on) {Beryllium, Boron, Lead, Molybdenum};
(3) 9056_ANIONS_IC: COMMON {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate};
(4) GAMMA_GS: COMMON; ~~AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON {Plutonium-239/240}; UISO_IE_PRECIP_AEA: COMMON {Uranium-233/234, Uranium-235, Uranium-238}; SRTOT_SEP_PRECIP_GPC: COMMON;~~ EBW 10/18/2017

PRINTED ON 10/12/2017 FSR ID = FSR52328 TRVL NUM = TRVL-18-030 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 4367735			F17-002-092	PAGE 1 OF 2
COLLECTOR Malcom Chunn CHPRC	**COMPANY CONTACT** NAGEL, SE	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** SUMNER, LC	**REQUIRED TAT** 15 Days	
SAMPLING LOCATION 100-K-107/108, IP2	**PROJECT DESIGNATION** 100-K-AF In-Process Sampling - Soil		**SAF NO.** F17-002	**ORIGINAL**	
ICE CHEST NO. GWS-627	**FIELD LOGBOOK NO.** HNF-N-507 38	**ACTUAL SAMPLE DEPTH** 0-6"	**PURCHASE ORDER/CHARGE CODE** 304306	**METHOD OF SHIPMENT** FEDERAL EXPRESS	
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 86517		**BILL OF LADING/AIR BILL NO.**		

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
N/A

PRESERVATION	Cool <=6C	Cool <=6C	None	Cool <=6C	Cool <=6C	None
HOLDING TIME	14/40 Days	14/40 Days	28 Days	30 Days	28 Days/48 Hours	6 Months
TYPE OF CONTAINER	aG	aG	G/P	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1	1	1
VOLUME	250mL	120mL	250mL	120mL	250mL	250mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	8081_PEST_GC: COMMON; 8081_PEST_GC: CH 01;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	7196_CR6: COMMON;	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS
SAMPLE NO.	**FILTERED**	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**						
B38W39	N/A	SOIL	OCT 3 0 2017	0955	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	**SIGN/ PRINT NAMES** RECEIVED BY/STORED IN	DATE/TIME
Malcom Chunn CHPRC MCC	OCT 3 0 2017 1140	SSU-1	OCT 3 0 2017 1140
SSU #1	OCT 3 1 2017 0800	Lesly Wall /CHPRC Lesly Wall	OCT 3 1 2017 0800
Lesly Wall /CHPRC Lesly Wall	OCT 3 1 2017 1400	FEDEX	~~OCT 3 1 2017~~ 10/31/17
FedEx		STACY BOONE	11-1-17 9:00

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

FINAL SAMPLE DISPOSITION	**DISPOSAL METHOD**	**DISPOSED BY**	**DATE/TIME**

PRINTED ON 10/12/2017 **FSR ID = FSR52329** **TRVL NUM = TRVL-18-030** A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 4367735		F17-002-092	PAGE 2 OF 2
COLLECTOR Malcom Chunn CHPRC	**COMPANY CONTACT** NAGEL, SE	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** SUMNER, LC	**REQUIRED TAT** 15 Days
SAMPLING LOCATION 100-K-107/108, IP2	**PROJECT DESIGNATION** 100-K-AF In-Process Sampling - Soil		**SAF NO.** F17-002	ORIGINAL
ICE CHEST NO. GWS-627	**FIELD LOGBOOK NO.** 26010.50.17 HNF-N-508738	**ACTUAL SAMPLE DEPTH** 0-6"	**PURCHASE ORDER/CHARGE CODE** 304306	**METHOD OF SHIPMENT** FEDERAL EXPRESS
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 8657		**BILL OF LADING/AIR BILL NO.**	

SPECIAL INSTRUCTIONS

TRVL-18-030
(1) 8270_SVOA_GCMS_SIM: COMMON {Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(ghi)perylene, Benzo(k)fluoranthene, Chrysene, Dibenz[a,h]anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene};
(2) 7471_MERCURY_CV: COMMON (SOLIDS); 6020_METALS_ICPMS: COMMON {Barium, Cadmium, Chromium, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Silver}; 6010_METALS_ICP: COMMON {Antimony, Arsenic, Cobalt, Copper, Manganese, Nickel, Vanadium, Zinc}; 6010_METALS_ICP: COMMON (Add-on) {Beryllium, Boron, Lead, Molybdenum};
(3) 9056_ANIONS_IC: COMMON {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate};
(4) GAMMA_GS: COMMON; ~~AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON {Plutonium-239/240}; UISO_IE_PRECIP_AEA: COMMON {Uranium-233/234, Uranium-235, Uranium-238}; SRTOT_SEP_PRECIP_GPC: COMMON;~~ EBN 10/18/2017

PRINTED ON 10/12/2017 | FSR ID = FSR52329 | TRVL NUM = TRVL-18-030 | A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 4367735		F17-002-093	PAGE 1 OF 2
COLLECTOR Malcom Chunn CHPRC	**COMPANY CONTACT** NAGEL, SE	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** SUMNER, LC	**REQUIRED TAT** 15 Days
SAMPLING LOCATION 100-K-107/108, IP3	**PROJECT DESIGNATION** 100-K-AF In-Process Sampling - Soil		**SAF NO.** F17-002	ORIGINAL
ICE CHEST NO. GWS-570	**FIELD LOGBOOK NO.** HNF-N-507 38	**ACTUAL SAMPLE DEPTH** 0-6"	**PURCHASE ORDER/CHARGE CODE** 304306	**METHOD OF SHIPMENT** FEDERAL EXPRESS
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 8657		**BILL OF LADING/AIR BILL NO.** 7706 2999 6540	

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
N/A

PRESERVATION	Cool <=6C	Cool <=6C	None	Cool <=6C	Cool <=6C	None				
HOLDING TIME	14/40 Days	14/40 Days	28 Days	30 Days	28 Days/48 Hours	6 Months				
TYPE OF CONTAINER	aG	aG	G/P	G/P	G/P	G/P				
NO. OF CONTAINER(S)	1	1	1	1	1	1				
VOLUME	250mL	120mL	250mL	120mL	250mL	250mL				
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	8081_PEST_GC: COMMON; 8081_PEST_GC: CH 01;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	7196_CR6: COMMON;	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS				

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME						
B38W40	N/A	SOIL	OCT 30 2017	1007	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Malcom Chunn CHPRC MRC	OCT 30 2017 1140	SSU-1	OCT 30 2017 1140
SSU-1	OCT 31 2017 0715	Curt Hoffman CHPRC	OCT 31 2017 0715
Curt Hoffman CHPRC	OCT 31 2017 1400	FEDEX	
FEDEX		STACY BOONE	11-1-17 9:00

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 10/12/2017 | FSR ID = FSR52330 | TRVL NUM = TRVL-18-030 | A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 4367735		F17-002-093	PAGE 2 OF 2
COLLECTOR Malcom Chunn CHPRC	**COMPANY CONTACT** NAGEL, SE	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** SUMNER, LC	**REQUIRED TAT** 15 Days
SAMPLING LOCATION 100-K-107/108, IP3	**PROJECT DESIGNATION** 100-K-AF In-Process Sampling - Soil		**SAF NO.** F17-002	ORIGINAL
ICE CHEST NO. GWS-570	**FIELD LOGBOOK NO.** HNF-N-507 38	**ACTUAL SAMPLE DEPTH** 0-6"	**PURCHASE ORDER/CHARGE CODE** 304306	**METHOD OF SHIPMENT** FEDERAL EXPRESS
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 8657		**BILL OF LADING/AIR BILL NO.** 770629996540	

SPECIAL INSTRUCTIONS

TRVL-18-030
(1) 8270_SVOA_GCMS_SIM: COMMON {Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(ghi)perylene, Benzo(k)fluoranthene, Chrysene, Dibenz[a,h]anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene};
(2) 7471_MERCURY_CV: COMMON (SOLIDS); 6020_METALS_ICPMS: COMMON {Barium, Cadmium, Chromium, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Silver}; 6010_METALS_ICP: COMMON {Antimony, Arsenic, Cobalt, Copper, Manganese, Nickel, Vanadium, Zinc}; 6010_METALS_ICP: COMMON (Add-on) {Beryllium, Boron, Lead, Molybdenum};
(3) 9056_ANIONS_IC: COMMON {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate};
(4) GAMMA_GS: COMMON; ~~AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON {Plutonium-239/240}; UISO_IE_PRECIP_AEA: COMMON {Uranium-233/234, Uranium-235, Uranium-238}; SRTOT_SEP_PRECIP_GPC: COMMON;~~ EBN 10/18/2017

PRINTED ON 10/12/2017 FSR ID = FSR52330 TRVL NUM = TRVL-18-030 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 436735 61DD	F17-002-094	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	REQUIRED TAT
Malcom Chunn CHPRC	NAGEL, SE	373-5869	SUMNER, LC	15 Days

SAMPLING LOCATION	PROJECT DESIGNATION	SAF NO.	
100-K-107/108, IP4	100-K-AF In-Process Sampling - Soil	F17-002	ORIGINAL

ICE CHEST NO.	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH	PURCHASE ORDER/CHARGE CODE	METHOD OF SHIPMENT
GWS-578	HNF-N- 507 38	0-6"	304306	FEDERAL EXPRESS

SHIPPED TO	OFFSITE PROPERTY NO.	BILL OF LADING/AIR BILL NO.
GEL Laboratories, LLC	8657	7706 2999 7020

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
N/A

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME	PRESERVATION	HOLDING TIME	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS
					Cool <=6C	14/40 Days	aG	1	250mL	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
					Cool <=6C	14/40 Days	aG	1	120mL	8081_PEST_GC: COMMON; 8081_PEST_GC: CH 01;
					None	28 Days	G/P	1	250mL	SEE ITEM (2) IN SPECIAL INSTRUCTIONS
					Cool <=6C	30 Days	G/P	1	120mL	7196_CR6: COMMON;
					Cool <=6C	28 Days/48 Hours	G/P	1	250mL	SEE ITEM (3) IN SPECIAL INSTRUCTIONS
					None	6 Months	G/P	1	250mL	SEE ITEM (4) IN SPECIAL INSTRUCTIONS
B38W41	N/A	SOIL	OCT 3 0 2017	1015	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Malcom Chunn CHPRC MRC	OCT 3 0 2017 1140	SSU-1	OCT 3 0 2017 1140
SSU #1	OCT 3 1 2017 0750	Lesly Wall /CHPRC Lesly Wall	OCT 3 1 2017 0750
Lesly Wall /CHPRC Lesly Wall	OCT 3 1 2017 1400	FEDEX	
FedEx		STACY BOONE	11-1-17 9:00

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 10/12/2017 | FSR ID = FSR52331 | TRVL NUM = TRVL-18-030 | A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 426735		F17-002-094	PAGE 2 OF 2
COLLECTOR Malcom Chunn CHPRC	**COMPANY CONTACT** NAGEL, SE	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** SUMNER, LC	**REQUIRED TAT** 15 Days
SAMPLING LOCATION 100-K-107/108, IP4	**PROJECT DESIGNATION** 100-K-AF In-Process Sampling - Soil		**SAF NO.** F17-002	ORIGINAL
ICE CHEST NO. GWS578	**FIELD LOGBOOK NO.** HNF-N-507 38	**ACTUAL SAMPLE DEPTH** 0-6"	**PURCHASE ORDER/CHARGE CODE** 304306	**METHOD OF SHIPMENT** FEDERAL EXPRESS
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 86577		**BILL OF LADING/AIR BILL NO.** 7706 2999 7020	

SPECIAL INSTRUCTIONS

TRVL-18-030
(1) 8270_SVOA_GCMS_SIM: COMMON {Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(ghi)perylene, Benzo(k)fluoranthene, Chrysene, Dibenz[a,h]anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene};
(2) 7471_MERCURY_CV: COMMON (SOLIDS); 6020_METALS_ICPMS: COMMON {Barium, Cadmium, Chromium, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Silver}; 6010_METALS_ICP: COMMON {Antimony, Arsenic, Cobalt, Copper, Manganese, Nickel, Vanadium, Zinc}; 6010_METALS_ICP: COMMON (Add-on) {Beryllium, Boron, Lead, Molybdenum};
(3) 9056_ANIONS_IC: COMMON {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate};
(4) GAMMA_GS: COMMON; ~~AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON {Plutonium-239/240}; UISO_IE_PRECIP_AEA: COMMON {Uranium-233/234, Uranium-235, Uranium-238}; SRTOT_SEP_PRECIP_GPC: COMMON;~~

BBN 10/18/2017

PRINTED ON 10/12/2017 FSR ID = FSR52331 TRVL NUM = TRVL-18-030 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 4367735		F17-002-095	PAGE 1 OF 2
COLLECTOR Malcom Chunn CHPRC	**COMPANY CONTACT** NAGEL, SE	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** SUMNER, LC	**REQUIRED TAT** 15 Days
SAMPLING LOCATION 100-K-107/108, IP5	**PROJECT DESIGNATION** 100-K-AF In-Process Sampling - Soil		**SAF NO.** F17-002	ORIGINAL
ICE CHEST NO. GWS-627	**FIELD LOGBOOK NO.** HNF-N-507 38	**ACTUAL SAMPLE DEPTH** 0-6"	**PURCHASE ORDER/CHARGE CODE** 304306	**METHOD OF SHIPMENT** FEDERAL EXPRESS
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 8657		**BILL OF LADING/AIR BILL NO.**	

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
N/A

PRESERVATION	Cool <=6C	Cool <=6C	None	Cool <=6C	Cool <=6C	None
HOLDING TIME	14/40 Days	14/40 Days	28 Days	30 Days	28 Days/48 Hours	6 Months
TYPE OF CONTAINER	aG	aG	G/P	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1	1	1
VOLUME	250mL	120mL	250mL	120mL	250mL	250mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	8081_PEST_GC: COMMON; 8081_PEST_GC: CH 01;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	7196_CR6: COMMON;	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS
SAMPLE NO.	**FILTERED**	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**						
B38W42	N/A	SOIL	OCT 30 2017	1025	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	**SIGN/ PRINT NAMES** RECEIVED BY/STORED IN	DATE/TIME
Malcom Chunn CHPRC Mal	OCT 30 2017 1140	SSU-1	OCT 30 2017 1140
SSU#1	OCT 31 2017 0800	Lesly Wall /CHPRC Lesly Wall	OCT 31 2017 0800
Lesly Wall /CHPRC Lesly Wall	OCT 31 2017 1400	FEDEX	
FedEx		STACY BOONE /tgb	11-1-17 9:0

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

FINAL SAMPLE DISPOSITION	**DISPOSAL METHOD**	**DISPOSED BY**	**DATE/TIME**

PRINTED ON 10/12/2017 **FSR ID = FSR52332** **TRVL NUM = TRVL-18-030** A-6003-618 (REV 3)

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 436735		F17-002-095	PAGE 2 OF 2
COLLECTOR	**COMPANY CONTACT** NAGEL, SE	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** SUMNER, LC	**REQUIRED TAT** 15 Days
SAMPLING LOCATION 100-K-107/108, IP5	**PROJECT DESIGNATION** 100-K-AF In-Process Sampling - Soil		**SAF NO.** F17-002	ORIGINAL
ICE CHEST NO. GWS-627	**FIELD LOGBOOK NO.** HNF-N-507 38	**ACTUAL SAMPLE DEPTH** 0-6"	**PURCHASE ORDER/CHARGE CODE** 304306	**METHOD OF SHIPMENT** FEDERAL EXPRESS
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 8657		**BILL OF LADING/AIR BILL NO.**	

SPECIAL INSTRUCTIONS

TRVL-18-030
(1) 8270_SVOA_GCMS_SIM: COMMON {Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(ghi)perylene, Benzo(k)fluoranthene, Chrysene, Dibenz[a,h]anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene};
(2) 7471_MERCURY_CV: COMMON (SOLIDS); 6020_METALS_ICPMS: COMMON {Barium, Cadmium, Chromium, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Silver}; 6010_METALS_ICP: COMMON {Antimony, Arsenic, Cobalt, Copper, Manganese, Nickel, Vanadium, Zinc}; 6010_METALS_ICP: COMMON (Add-on) {Beryllium, Boron, Lead, Molybdenum};
(3) 9056_ANIONS_IC: COMMON {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate};
(4) GAMMA_GS: COMMON; ~~AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON {Plutonium-239/240}; UISO_IE_PRECIP_AEA: COMMON {Uranium-233/234, Uranium-235, Uranium-238}; SRTOT_SEP_PRECIP_GPC: COMMON;~~ EBN 10/18/2017

PRINTED ON 10/12/2017 FSR ID = FSR52332 TRVL NUM = TRVL-18-030 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 4367735			F17-002-096	PAGE 1 OF 2
COLLECTOR Malcom Chunn CHPRC	**COMPANY CONTACT** NAGEL, SE	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** SUMNER, LC		**REQUIRED TAT** 15 Days
SAMPLING LOCATION 100-K-107/108, IP6	**PROJECT DESIGNATION** 100-K-AF In-Process Sampling - Soil		**SAF NO.** F17-002		ORIGINAL
ICE CHEST NO. GWS-627	**FIELD LOGBOOK NO.** HNF-N-507 38	**ACTUAL SAMPLE DEPTH** 0-6"	**PURCHASE ORDER/CHARGE CODE** 304306		**METHOD OF SHIPMENT** FEDERAL EXPRESS
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 8657		**BILL OF LADING/AIR BILL NO.**		

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
N/A

PRESERVATION	Cool <=6C	Cool <=6C	None	Cool <=6C	Cool <=6C	None
HOLDING TIME	14/40 Days	14/40 Days	28 Days	30 Days	28 Days/48 Hours	6 Months
TYPE OF CONTAINER	aG	aG	G/P	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1	1	1
VOLUME	250mL	120mL	250mL	120mL	250mL	250mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	8081_PEST_GC: COMMON; 8081_PEST_GC: CH 01;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	7196_CR6: COMMON;	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS
SAMPLE NO.	**FILTERED**	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**						
B38W43	N/A	SOIL	OCT 30 2017	1030	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Malcom Chunn CHPRC MRC	OCT 30 2017 1140	SSU-1	OCT 30 2017 1140
SSU#1	OCT 31 2017 0800	Lesly Wall /CHPRC Lesly Wall	OCT 31 2017 0800
Lesly Wall /CHPRC Lesly Wall	OCT 31 2017 1400	FEDEX	
FedEx		STACY BOONE Stacy Boone	11-1-17 9:00

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 10/12/2017 | FSR ID = FSR52333 | TRVL NUM = TRVL-18-030 | A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 4367735		F17-002-096	PAGE 2 OF 2
COLLECTOR Malcom Chunn CHPRC	**COMPANY CONTACT** NAGEL, SE	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** SUMNER, LC	**REQUIRED TAT** 15 Days
SAMPLING LOCATION 100-K-107/108, IP6	**PROJECT DESIGNATION** 100-K-AF In-Process Sampling - Soil		**SAF NO.** F17-002	ORIGINAL
ICE CHEST NO. GWS-627	**FIELD LOGBOOK NO.** ~~HNF-N-~~ 50738	**ACTUAL SAMPLE DEPTH** 0-6'	**PURCHASE ORDER/CHARGE CODE** 304306	**METHOD OF SHIPMENT** FEDERAL EXPRESS
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 86557		**BILL OF LADING/AIR BILL NO.**	

SPECIAL INSTRUCTIONS

TRVL-18-030
(1) 8270_SVOA_GCMS_SIM: COMMON {Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(ghi)perylene, Benzo(k)fluoranthene, Chrysene, Dibenz[a,h]anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene};
(2) 7471_MERCURY_CV: COMMON (SOLIDS); 6020_METALS_ICPMS: COMMON {Barium, Cadmium, Chromium, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Silver}; 6010_METALS_ICP: COMMON {Antimony, Arsenic, Cobalt, Copper, Manganese, Nickel, Vanadium, Zinc}; 6010_METALS_ICP: COMMON (Add-on) {Beryllium, Boron, Lead, Molybdenum};
(3) 9056_ANIONS_IC: COMMON {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate};
(4) GAMMA_GS: COMMON; ~~AMEMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON {Plutonium-239/240}; UISO_IE_PRECIP_AEA: COMMON {Uranium-233/234, Uranium-235, Uranium-238}; SRTOT_SEP_PRECIP_GPC: COMMON;~~

SBN 10/17/2018

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 4355735			F17-002-097	PAGE 1 OF 2
COLLECTOR Malcom Chunn CHPRC	**COMPANY CONTACT** NAGEL, SE	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** SUMNER, LC	**REQUIRED TAT** 15 Days	
SAMPLING LOCATION 100-K-107/108, IP7	**PROJECT DESIGNATION** 100-K-AF In-Process Sampling - Soil		**SAF NO.** F17-002	**ORIGINAL**	
ICE CHEST NO. GWS-578	**FIELD LOGBOOK NO.** HNF-N-507 38	**ACTUAL SAMPLE DEPTH** 0-6"	**PURCHASE ORDER/CHARGE CODE** 304306	**METHOD OF SHIPMENT** FEDERAL EXPRESS	
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 8657		**BILL OF LADING/AIR BILL NO.** 7706 2999 7020		

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
N/A

PRESERVATION	Cool <=6C	Cool <=6C	None	Cool <=6C	Cool <=6C	None
HOLDING TIME	14/40 Days	14/40 Days	28 Days	30 Days	28 Days/48 Hours	6 Months
TYPE OF CONTAINER	aG	aG	G/P	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1	1	1
VOLUME	250mL	120mL	250mL	120mL	250mL	250mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	8081_PEST_GC: COMMON; 8081_PEST_GC: CH 01;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	7196_CR6: COMMON;	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME						
B38W44	N/A	SOIL	OCT 30 2017	1037	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Malcom Chunn CHPRC MRC	OCT 30 2017 1140	SSU-1	OCT 30 2017 1140
SSU#1	OCT 31 2017 0800	Lesly Wall /CHPRC Lesly Wall	OCT 31 2017 0800
Lesly Wall /CHPRC Lesly Wall	OCT 31 2017 1400	FEDEX	
FedEx		STACY BOONE	11/1/17 9:00

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 10/12/2017 | FSR ID = FSR52334 | TRVL NUM = TRVL-18-030 | A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 4367735			F17-002-097	PAGE 2 OF 2
COLLECTOR Malcom Chunn CHPRC	**COMPANY CONTACT** NAGEL, SE	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** SUMNER, LC	**REQUIRED TAT** 15 Days	
SAMPLING LOCATION 100-K-107/108, IP7	**PROJECT DESIGNATION** 100-K-AF In-Process Sampling - Soil		**SAF NO.** F17-002	**ORIGINAL**	
ICE CHEST NO. GWS-578	**FIELD LOGBOOK NO.** HNF-N-507 38	**ACTUAL SAMPLE DEPTH** 0-6"	**PURCHASE ORDER/CHARGE CODE** 304306	**METHOD OF SHIPMENT** FEDERAL EXPRESS	
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 8657		**BILL OF LADING/AIR BILL NO.** 7706 2999 7020		

SPECIAL INSTRUCTIONS

TRVL-18-030
(1) 8270_SVOA_GCMS_SIM: COMMON {Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(ghi)perylene, Benzo(k)fluoranthene, Chrysene, Dibenz[a,h]anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene};
(2) 7471_MERCURY_CV: COMMON (SOLIDS); 6020_METALS_ICPMS: COMMON {Barium, Cadmium, Chromium, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Silver}; 6010_METALS_ICP: COMMON {Antimony, Arsenic, Cobalt, Copper, Manganese, Nickel, Vanadium, Zinc}; 6010_METALS_ICP: COMMON (Add-on) {Beryllium, Boron, Lead, Molybdenum};
(3) 9056_ANIONS_IC: COMMON {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate};
(4) GAMMA_GS: COMMON; ~~AMGMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON {Plutonium-239/240}; UISO_IE_PRECIP_AEA: COMMON {Uranium-233/234, Uranium-235, Uranium-238}; SRTOT_SEP_PRECIP_GPC: COMMON;~~

SBN 10/13/2017

PRINTED ON 10/12/2017 | FSR ID = FSR52334 | TRVL NUM = TRVL-18-030 | A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 436725 75103	F17-002-098	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	REQUIRED TAT
Malcom Chunn CHPRC	NAGEL, SE	373-5869	SUMNER, LC	15 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**	ORIGINAL
100-K-107/108, IP8	100-K-AF In-Process Sampling - Soil		F17-002	
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**PURCHASE ORDER/CHARGE CODE**	**METHOD OF SHIPMENT**
GWS-570	HNF-N-507 38	0-6"	304306	FEDERAL EXPRESS
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**	
GEL Laboratories, LLC	8657		7706 2999 6540	

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
N/A

PRESERVATION	Cool <=6C	Cool <=6C	None	Cool <=6C	Cool <=6C	None
HOLDING TIME	14/40 Days	14/40 Days	28 Days	30 Days	28 Days/48 Hours	6 Months
TYPE OF CONTAINER	aG	aG	G/P	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1	1	1
VOLUME	250mL	120mL	250mL	120mL	250mL	250mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	8081_PEST_GC: COMMON; 8081_PEST_GC: CH 01;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	7196_CR6: COMMON;	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME						
B38W45	N/A	SOIL	OCT 30 2017	1045	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Malcom Chunn CHPRC MR Ch	OCT 30 2017 1140	SSU-1	OCT 30 2017 1140
SSU-1	OCT 31 2017 0715	Curt Hoffman CHPRC	OCT 31 2017 0715
CHN Curt Hoffman CHPRC	OCT 31 2017 1400	FEDEX	
FedEx		STACY BOONE 11-1-17 9:00	

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 10/12/2017 | FSR ID = FSR52335 | TRVL NUM = TRVL-18-030 | A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 436735		F17-002-098	PAGE 2 OF 2
COLLECTOR Malcom Chunn CHPRC	**COMPANY CONTACT** NAGEL, SE	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** SUMNER, LC	**REQUIRED TAT** 15 Days
SAMPLING LOCATION 100-K-107/108, IP8	**PROJECT DESIGNATION** 100-K-AF In-Process Sampling - Soil		**SAF NO.** F17-002	**ORIGINAL**
ICE CHEST NO. GWS-570	**FIELD LOGBOOK NO.** ~~HNF-N~~ 50738	**ACTUAL SAMPLE DEPTH** 0-6"	**PURCHASE ORDER/CHARGE CODE** 304306	**METHOD OF SHIPMENT** FEDERAL EXPRESS
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 8657		**BILL OF LADING/AIR BILL NO.** 7706 2999 6540	

SPECIAL INSTRUCTIONS

TRVL-18-030
(1) 8270_SVOA_GCMS_SIM: COMMON {Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(ghi)perylene, Benzo(k)fluoranthene, Chrysene, Dibenz[a,h]anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene};
(2) 7471_MERCURY_CV: COMMON (SOLIDS); 6020_METALS_ICPMS: COMMON {Barium, Cadmium, Chromium, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Silver}; 6010_METALS_ICP: COMMON {Antimony, Arsenic, Cobalt, Copper, Manganese, Nickel, Vanadium, Zinc}; 6010_METALS_ICP: COMMON (Add-on) {Beryllium, Boron, Lead, Molybdenum};
(3) 9056_ANIONS_IC: COMMON {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate};
(4) GAMMA_GS: COMMON; ~~AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON {Plutonium-239/240}; UISO_IE_PRECIP_AEA: COMMON {Uranium-233/234, Uranium-235, Uranium-238}; SRTOT_SEP_PRECIP_GPC: COMMON;~~

10/18/2017

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 4367735	F17-002-099	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	REQUIRED TAT
Malcom Chunn CHPRC	NAGEL, SE	373-5869	SUMNER, LC	15 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**	ORIGINAL
100-K-107/108, Contingency 1	100-K-AF In-Process Sampling - Soil		F17-002	
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**PURCHASE ORDER/CHARGE CODE**	**METHOD OF SHIPMENT**
GWS-578	HNF-N- 507 38	0-6"	304306	FEDERAL EXPRESS
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**	
GEL Laboratories, LLC	86657		7706299917020	

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
N/A

PRESERVATION	Cool <=6C	Cool <=6C	None	Cool <=6C	Cool <=6C	None
HOLDING TIME	14/40 Days	14/40 Days	28 Days	30 Days	28 Days/48 Hours	6 Months
TYPE OF CONTAINER	aG	aG	G/P	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1	1	1
VOLUME	250mL	120mL	250mL	120mL	250mL	250mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	8081_PEST_GC: COMMON; 8081_PEST_GC: CH 01;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	7196_CR6: COMMON;	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS
SAMPLE NO.	**FILTERED**	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**							
B38W46	N/A	SOIL	OCT 30 2017	0955	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Malcom Chunn CHPRC MRC	OCT 30 2017 1140	SSU-1	OCT 30 2017 1140
SSU#1	OCT 31 2017 0800	Lesly Wall /CHPRC Lesly Wall	OCT 31 2017 0800
Lesly Wall /CHPRC Lesly Wall	OCT 31 2017 1400	FEDEX	
FedEx		STACY BOONE 11-1-17 9:00	

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 10/12/2017 | FSR ID = FSR52336 | TRVL NUM = TRVL-18-030 | A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 436735		F17-002-099	PAGE 2 OF 2
COLLECTOR Malcom Chunn CHPRC	**COMPANY CONTACT** NAGEL, SE	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** SUMNER, LC	**REQUIRED TAT** 15 Days
SAMPLING LOCATION 100-K-107/108, Contingency 1	**PROJECT DESIGNATION** 100-K-AF In-Process Sampling - Soil		**SAF NO.** F17-002	ORIGINAL
ICE CHEST NO. GWS-578	**FIELD LOGBOOK NO.** ~~HNF-N-~~ 507 38	**ACTUAL SAMPLE DEPTH** 0-6"	**PURCHASE ORDER/CHARGE CODE** 304306	**METHOD OF SHIPMENT** FEDERAL EXPRESS
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 8657		**BILL OF LADING/AIR BILL NO.** 7706 2999 7020	

SPECIAL INSTRUCTIONS

TRVL-18-030
(1) 8270_SVOA_GCMS_SIM: COMMON {Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(ghi)perylene, Benzo(k)fluoranthene, Chrysene, Dibenz[a,h]anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene};
(2) 7471_MERCURY_CV: COMMON (SOLIDS); 6020_METALS_ICPMS: COMMON {Barium, Cadmium, Chromium, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Silver}; 6010_METALS_ICP: COMMON {Antimony, Arsenic, Cobalt, Copper, Manganese, Nickel, Vanadium, Zinc}; 6010_METALS_ICP: COMMON (Add-on) {Beryllium, Boron, Lead, Molybdenum};
(3) 9056_ANIONS_IC: COMMON {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate};
(4) GAMMA_GS: COMMON; ~~AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON {Plutonium-239/240}; UISO_IE_PRECIP_AEA: COMMON {Uranium-233/234, Uranium-235, Uranium-238}; SRTOT_SEP_PRECIP_GPC: COMMON;~~

PRINTED ON 10/12/2017 FSR ID = FSR52336 TRVL NUM = TRVL-18-030 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 436735			F17-002-100	PAGE 1 OF 2
COLLECTOR Malcom Chunn CHPRC	**COMPANY CONTACT** NAGEL, SE	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** SUMNER, LC	**REQUIRED TAT** 15 Days	
SAMPLING LOCATION 100-K-107/108, Contingency 2	**PROJECT DESIGNATION** 100-K-AF In-Process Sampling - Soil		**SAF NO.** F17-002	ORIGINAL	
ICE CHEST NO. GWS 578	**FIELD LOGBOOK NO.** HNF-N-507-38-47	**ACTUAL SAMPLE DEPTH** N/A	**PURCHASE ORDER/CHARGE CODE** 304306	**METHOD OF SHIPMENT** FEDERAL EXPRESS	
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 8657		**BILL OF LADING/AIR BILL NO.** 770629997020		

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
N/A

PRESERVATION	Cool <=6C	Cool <=6C	None	Cool <=6C	Cool <=6C	None
HOLDING TIME	14/40 Days	14/40 Days	28 Days	30 Days	28 Days/48 Hours	6 Months
TYPE OF CONTAINER	aG	aG	G/P	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1	1	1
VOLUME	250mL	120mL	250mL	120mL	250mL	250mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	8081_PEST_GC: COMMON; 8081_PEST_GC: CH 01;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	7196_CR6: COMMON;	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME						
B38W47	N/A	SOIL	OCT 30 2017	0735	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Malcom Chunn CHPRC MCh	OCT 30 2017 1140	SSU-1	OCT 30 2017 1140
SSU#1	OCT 31 2017 0800	Lesly Wall /CHPRC LeslyWall	OCT 31 2017 0800
Lesly Wall /CHPRC LeslyWall	OCT 31 2017 1400	FEDEX	
FedEx		STACY BOONE 11/1/1798	

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 10/26/2017 | FSR ID = FSR52337 | TRVL NUM = TRVL-18-030 | A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 4367735		F17-002-100	PAGE 2 OF 2
COLLECTOR Malcom Chunn CHPRC	**COMPANY CONTACT** NAGEL, SE	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** SUMNER, LC	**REQUIRED TAT** 15 Days
SAMPLING LOCATION 100-K-107/108, Contingency 2	**PROJECT DESIGNATION** 100-K-AF In-Process Sampling - Soil		**SAF NO.** F17-002	ORIGINAL
ICE CHEST NO. 6WS-578	**FIELD LOGBOOK NO.** ~~HNF-N-507-~~ 38 - 47	**ACTUAL SAMPLE DEPTH** N/A	**PURCHASE ORDER/CHARGE CODE** 304306	**METHOD OF SHIPMENT** FEDERAL EXPRESS
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 86517		**BILL OF LADING/AIR BILL NO.** 7706 2999 7020	

SPECIAL INSTRUCTIONS

TRVL-18-030
(1) 8270_SVOA_GCMS_SIM: COMMON {Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(ghi)perylene, Benzo(k)fluoranthene, Chrysene, Dibenz[a,h]anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene};
(2) 7471_MERCURY_CV: COMMON (SOLIDS); 6020_METALS_ICPMS: COMMON {Barium, Cadmium, Chromium, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Silver}; 6010_METALS_ICP: COMMON {Antimony, Arsenic, Cobalt, Copper, Manganese, Nickel, Vanadium, Zinc}; 6010_METALS_ICP: COMMON (Add-on) {Beryllium, Boron, Lead, Molybdenum};
(3) 9056_ANIONS_IC: COMMON {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate};
(4) GAMMA_GS: COMMON; AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON {Plutonium-239/240}; UISO_IE_PRECIP_AEA: COMMON {Uranium-233/234, Uranium-235, Uranium-238}; SRTOT_SEP_PRECIP_GPC: COMMON;

PRINTED ON 10/26/2017 FSR ID = FSR52337 TRVL NUM = TRVL-18-030 A-6003-618 (REV 3)

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: CPRC	SDG/AR/COC/Work Order: 436735
Received By: STACY BOONE	Date Received: 1-NOV-17
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 7706 3406 9448-1c 7706 2999 6540-1c 7706 2999 6930-1c 7706 2999 7020-1c 7706 2999 7384-1c

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
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): Ø 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:

	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?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
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 MRH Date 11/2/17 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: 15−NOV−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 24 November 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	SC000122018−1
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
Puerto Rico	SC00012
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−17−12
Utah NELAP	SC000122017−24
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Semi-Volatile Analysis

Case Narrative

GC/MS Semivolatile
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL436735
Work Order #: 436735

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: 1715120

Preparation Method: SW846 3541
Preparation Procedure: GL-OA-E-066 REV# 8
Preparation Batch: 1715115

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

GEL Sample ID#	Client Sample Identification
436735001	B38W38
436735002	B38W39
436735003	B38W40
436735004	B38W41
436735005	B38W42
436735006	B38W43
436735007	B38W44
436735008	B38W45
436735009	B38W46
436735010	B38W47
1203910370	Method Blank (MB)
1203910371	Laboratory Control Sample (LCS)
1203910372	436735003(B38W40) Matrix Spike (MS)
1203910373	436735003(B38W40) 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
1203910371 (LCS)	Acenaphthene	69* (70%-130%)
	Acenaphthylene	64* (70%-130%)

	Anthracene	66* (70%-130%)
	Benzo(ghi)perylene	62* (70%-130%)
	Fluoranthene	69* (70%-130%)
	Indeno(1,2,3-cd)pyrene	66* (70%-130%)
	Pyrene	69* (70%-130%)

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
1203910372MS and 1203910373MSD (B38W40)	Phenanthrene	RPD 57* (0%-30%)

Internal Standard (ISTD) Acceptance
The internal standard response for 1,4-Dichlorobenzene-d4 was outside of the acceptance criteria for samples 436735008 (B38W45), 436735009 (B38W46) and 436735010 (B38W47). Since 1,4-Dichlorobenzene-d4 was not used to quantitate the requested target analytes or surrogates for this batch, the data were not adversely impacted by the failure. The results are reported.

Technical Information

Sample Re-extraction/Re-analysis
The initial analysis for samples 436735008 (B38W45), 436735009 (B38W46) and 436735010 (B38W47) were outside of the DFTPP TUNE window. The samples were re-analyzed within a new DFTPP TUNE window. The data results are reported from the re-analysis.

Miscellaneous Information

Manual Integrations
Samples (See Below) 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.

Sample	Analyte	Value
1203910372 (B38W40MS)	1,4-Dichlorobenzene-d4,Acenaphthene-d10,Naphthalene-d8 and Phenanthrene-d10	Result 168ug/kg
1203910373 (B38W40MSD)	1,4-Dichlorobenzene-d4,Acenaphthene-d10 and Naphthalene-d8	Result 167ug/kg
436735003 (B38W40)	1,4-Dichlorobenzene-d4,Acenaphthene-d10,Naphthalene-d8 and Phenanthrene-d10	Result 167ug/kg
436735006 (B38W43)	Acenaphthene-d10	Result 142ug/kg
	Indeno(1,2,3-cd)pyrene	Result 5.69ug/kg
	Naphthalene-d8	Result 142ug/kg

436735010 (B38W47)	1,4-Dichlorobenzene-d4,Acenaphthene-d10 and Naphthalene-d8	Result 133ug/kg

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: GEL436735 GEL Work Order: 436735

The Qualifiers in this report are defined as follows:

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

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

DL Indicates that sample is diluted.

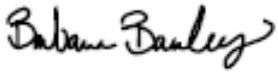
RA Indicates that sample is re-analyzed without re-extraction.

RE Indicates that sample is re-extracted.

Review/Validation

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

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

Signature:  **Name: Barbara Bailey**

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

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Date Collected:**	**10/30/2017 09:45**	**Matrix:**	**SOIL**
Lab Sample ID:	**436735001**	**Date Received:**	**11/01/2017 09:00**	**%Moisture:**	**7.9**
		Client:	**CPRC001**	**Project:**	**CPRC0F17002**
Client ID:	**B38W38**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1715120**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/02/2017 16:22**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2017 09:37**	**Aliquot:**	**30.04 g**	**Final Volume:**	**1 mL**
Data File:	**s110217.B\s8h0208.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
83-32-9	Acenaphthene	U	1.81	ug/kg	1.81	3.62
208-96-8	Acenaphthylene	U	1.81	ug/kg	1.81	3.62
120-12-7	Anthracene	U	1.81	ug/kg	1.81	3.62
56-55-3	Benzo(a)anthracene	U	1.81	ug/kg	1.81	3.62
50-32-8	Benzo(a)pyrene	U	1.81	ug/kg	1.81	3.62
205-99-2	Benzo(b)fluoranthene	J	3.25	ug/kg	1.81	3.62
191-24-2	Benzo(ghi)perylene	U	1.81	ug/kg	1.81	3.62
207-08-9	Benzo(k)fluoranthene	U	1.81	ug/kg	1.81	3.62
218-01-9	Chrysene	J	1.81	ug/kg	1.81	3.62
53-70-3	Dibenzo(a,h)anthracene	U	1.81	ug/kg	1.81	3.62
206-44-0	Fluoranthene	J	2.53	ug/kg	1.81	3.62
86-73-7	Fluorene	U	1.81	ug/kg	1.81	3.62
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.81	ug/kg	1.81	3.62
91-20-3	Naphthalene	U	1.08	ug/kg	1.08	3.62
85-01-8	Phenanthrene	U	1.81	ug/kg	1.81	3.62
129-00-0	Pyrene	J	2.53	ug/kg	1.81	3.62

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Date Collected:**	**10/30/2017 09:55**	**Matrix:**	**SOIL**
Lab Sample ID:	**436735002**	**Date Received:**	**11/01/2017 09:00**	**%Moisture:**	**6.2**
		Client:	**CPRC001**	**Project:**	**CPRC0F17002**
Client ID:	**B38W39**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1715120**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/02/2017 16:54**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2017 09:37**	**Aliquot:**	**30.15 g**	**Final Volume:**	**1 mL**
Data File:	**s110217.B\s8h0209.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
83-32-9	Acenaphthene	U	1.77	ug/kg	1.77	3.54
208-96-8	Acenaphthylene	U	1.77	ug/kg	1.77	3.54
120-12-7	Anthracene	U	1.77	ug/kg	1.77	3.54
56-55-3	Benzo(a)anthracene	U	1.77	ug/kg	1.77	3.54
50-32-8	Benzo(a)pyrene	U	1.77	ug/kg	1.77	3.54
205-99-2	Benzo(b)fluoranthene	J	2.48	ug/kg	1.77	3.54
191-24-2	Benzo(ghi)perylene	U	1.77	ug/kg	1.77	3.54
207-08-9	Benzo(k)fluoranthene	U	1.77	ug/kg	1.77	3.54
218-01-9	Chrysene	U	1.77	ug/kg	1.77	3.54
53-70-3	Dibenzo(a,h)anthracene	U	1.77	ug/kg	1.77	3.54
206-44-0	Fluoranthene	J	2.12	ug/kg	1.77	3.54
86-73-7	Fluorene	U	1.77	ug/kg	1.77	3.54
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.77	ug/kg	1.77	3.54
91-20-3	Naphthalene	U	1.06	ug/kg	1.06	3.54
85-01-8	Phenanthrene	U	1.77	ug/kg	1.77	3.54
129-00-0	Pyrene	U	1.77	ug/kg	1.77	3.54

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Date Collected:**	**10/30/2017 10:07**	**Matrix:**	**SOIL**
Lab Sample ID:	**436735003**	**Date Received:**	**11/01/2017 09:00**	**%Moisture:**	**20.6**
		Client:	**CPRC001**	**Project:**	**CPRC0F17002**
Client ID:	**B38W40**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1715120**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/02/2017 17:26**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2017 09:37**	**Aliquot:**	**30.11 g**	**Final Volume:**	**1 mL**
Data File:	**s110217.B\s8h0210.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
83-32-9	Acenaphthene	U	2.09	ug/kg	2.09	4.18
208-96-8	Acenaphthylene	U	2.09	ug/kg	2.09	4.18
120-12-7	Anthracene	U	2.09	ug/kg	2.09	4.18
56-55-3	Benzo(a)anthracene	J	2.51	ug/kg	2.09	4.18
50-32-8	Benzo(a)pyrene	J	2.09	ug/kg	2.09	4.18
205-99-2	Benzo(b)fluoranthene	J	3.76	ug/kg	2.09	4.18
191-24-2	Benzo(ghi)perylene	U	2.09	ug/kg	2.09	4.18
207-08-9	Benzo(k)fluoranthene	U	2.09	ug/kg	2.09	4.18
218-01-9	Chrysene	J	2.93	ug/kg	2.09	4.18
53-70-3	Dibenzo(a,h)anthracene	U	2.09	ug/kg	2.09	4.18
206-44-0	Fluoranthene	J	3.76	ug/kg	2.09	4.18
86-73-7	Fluorene	U	2.09	ug/kg	2.09	4.18
193-39-5	Indeno(1,2,3-cd)pyrene	U	2.09	ug/kg	2.09	4.18
91-20-3	Naphthalene	U	1.25	ug/kg	1.25	4.18
85-01-8	Phenanthrene	U	2.09	ug/kg	2.09	4.18
129-00-0	Pyrene	J	3.76	ug/kg	2.09	4.18

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Date Collected:**	**10/30/2017 10:15**	**Matrix:**	**SOIL**
Lab Sample ID:	**436735004**	**Date Received:**	**11/01/2017 09:00**	**%Moisture:**	**5.3**
		Client:	**CPRC001**	**Project:**	**CPRC0F17002**
Client ID:	**B38W41**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1715120**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/02/2017 20:06**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2017 09:37**	**Aliquot:**	**30.04 g**	**Final Volume:**	**1 mL**
Data File:	**s110217.B\s8h0213.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	3.52
208-96-8	Acenaphthylene	U	1.76	ug/kg	1.76	3.52
120-12-7	Anthracene	U	1.76	ug/kg	1.76	3.52
56-55-3	Benzo(a)anthracene	J	3.16	ug/kg	1.76	3.52
50-32-8	Benzo(a)pyrene	J	3.16	ug/kg	1.76	3.52
205-99-2	Benzo(b)fluoranthene		5.63	ug/kg	1.76	3.52
191-24-2	Benzo(ghi)perylene	U	1.76	ug/kg	1.76	3.52
207-08-9	Benzo(k)fluoranthene	J	2.46	ug/kg	1.76	3.52
218-01-9	Chrysene		4.22	ug/kg	1.76	3.52
53-70-3	Dibenzo(a,h)anthracene	U	1.76	ug/kg	1.76	3.52
206-44-0	Fluoranthene		4.92	ug/kg	1.76	3.52
86-73-7	Fluorene	U	1.76	ug/kg	1.76	3.52
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.76	ug/kg	1.76	3.52
91-20-3	Naphthalene	U	1.05	ug/kg	1.05	3.52
85-01-8	Phenanthrene	U	1.76	ug/kg	1.76	3.52
129-00-0	Pyrene		5.27	ug/kg	1.76	3.52

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Date Collected:**	**10/30/2017 10:25**	**Matrix:**	**SOIL**
Lab Sample ID:	**436735005**	**Date Received:**	**11/01/2017 09:00**	**%Moisture:**	**5.8**
		Client:	**CPRC001**	**Project:**	**CPRC0F17002**
Client ID:	**B38W42**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1715120**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/02/2017 20:38**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2017 09:37**	**Aliquot:**	**30.14 g**	**Final Volume:**	**1 mL**
Data File:	**s110217.B\s8h0214.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	3.52
208-96-8	Acenaphthylene	U	1.76	ug/kg	1.76	3.52
120-12-7	Anthracene	U	1.76	ug/kg	1.76	3.52
56-55-3	Benzo(a)anthracene	U	1.76	ug/kg	1.76	3.52
50-32-8	Benzo(a)pyrene	U	1.76	ug/kg	1.76	3.52
205-99-2	Benzo(b)fluoranthene	U	1.76	ug/kg	1.76	3.52
191-24-2	Benzo(ghi)perylene	U	1.76	ug/kg	1.76	3.52
207-08-9	Benzo(k)fluoranthene	U	1.76	ug/kg	1.76	3.52
218-01-9	Chrysene	U	1.76	ug/kg	1.76	3.52
53-70-3	Dibenzo(a,h)anthracene	U	1.76	ug/kg	1.76	3.52
206-44-0	Fluoranthene	U	1.76	ug/kg	1.76	3.52
86-73-7	Fluorene	U	1.76	ug/kg	1.76	3.52
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.76	ug/kg	1.76	3.52
91-20-3	Naphthalene	U	1.06	ug/kg	1.06	3.52
85-01-8	Phenanthrene	U	1.76	ug/kg	1.76	3.52
129-00-0	Pyrene	U	1.76	ug/kg	1.76	3.52

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Date Collected:**	**10/30/2017 10:30**	**Matrix:**	**SOIL**
Lab Sample ID:	**436735006**	**Date Received:**	**11/01/2017 09:00**	**%Moisture:**	**6.7**
		Client:	**CPRC001**	**Project:**	**CPRC0F17002**
Client ID:	**B38W43**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1715120**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/02/2017 21:09**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2017 09:37**	**Aliquot:**	**30.17 g**	**Final Volume:**	**1 mL**
Data File:	**s110217.B\s8h0215.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
83-32-9	Acenaphthene	U	1.78	ug/kg	1.78	3.55
208-96-8	Acenaphthylene	U	1.78	ug/kg	1.78	3.55
120-12-7	Anthracene	U	1.78	ug/kg	1.78	3.55
56-55-3	Benzo(a)anthracene		10.7	ug/kg	1.78	3.55
50-32-8	Benzo(a)pyrene		11.4	ug/kg	1.78	3.55
205-99-2	Benzo(b)fluoranthene		19.5	ug/kg	1.78	3.55
191-24-2	Benzo(ghi)perylene		4.98	ug/kg	1.78	3.55
207-08-9	Benzo(k)fluoranthene		7.11	ug/kg	1.78	3.55
218-01-9	Chrysene		12.1	ug/kg	1.78	3.55
53-70-3	Dibenzo(a,h)anthracene	J	2.13	ug/kg	1.78	3.55
206-44-0	Fluoranthene		20.3	ug/kg	1.78	3.55
86-73-7	Fluorene	U	1.78	ug/kg	1.78	3.55
193-39-5	Indeno(1,2,3-cd)pyrene		5.69	ug/kg	1.78	3.55
91-20-3	Naphthalene	U	1.07	ug/kg	1.07	3.55
85-01-8	Phenanthrene		3.55	ug/kg	1.78	3.55
129-00-0	Pyrene		16.3	ug/kg	1.78	3.55

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Date Collected:**	**10/30/2017 10:37**	**Matrix:**	**SOIL**
Lab Sample ID:	**436735007**	**Date Received:**	**11/01/2017 09:00**	**%Moisture:**	**5.1**
		Client:	**CPRC001**	**Project:**	**CPRC0F17002**
Client ID:	**B38W44**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1715120**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/02/2017 21:42**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2017 09:37**	**Aliquot:**	**30.26 g**	**Final Volume:**	**1 mL**
Data File:	**s110217.B\s8h0216.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
83-32-9	Acenaphthene	U	1.74	ug/kg	1.74	3.48
208-96-8	Acenaphthylene	U	1.74	ug/kg	1.74	3.48
120-12-7	Anthracene	J	2.44	ug/kg	1.74	3.48
56-55-3	Benzo(a)anthracene		36.2	ug/kg	1.74	3.48
50-32-8	Benzo(a)pyrene		37.3	ug/kg	1.74	3.48
205-99-2	Benzo(b)fluoranthene		60.2	ug/kg	1.74	3.48
191-24-2	Benzo(ghi)perylene		14.3	ug/kg	1.74	3.48
207-08-9	Benzo(k)fluoranthene		24.0	ug/kg	1.74	3.48
218-01-9	Chrysene		41.4	ug/kg	1.74	3.48
53-70-3	Dibenzo(a,h)anthracene		5.57	ug/kg	1.74	3.48
206-44-0	Fluoranthene		43.2	ug/kg	1.74	3.48
86-73-7	Fluorene	U	1.74	ug/kg	1.74	3.48
193-39-5	Indeno(1,2,3-cd)pyrene		15.7	ug/kg	1.74	3.48
91-20-3	Naphthalene	U	1.04	ug/kg	1.04	3.48
85-01-8	Phenanthrene		8.71	ug/kg	1.74	3.48
129-00-0	Pyrene		55.7	ug/kg	1.74	3.48

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Date Collected:**	**10/30/2017 10:45**	**Matrix:**	**SOIL**
Lab Sample ID:	**436735008**	**Date Received:**	**11/01/2017 09:00**	**%Moisture:**	**5.1**
		Client:	**CPRC001**	**Project:**	**CPRC0F17002**
Client ID:	**B38W45**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1715120**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/07/2017 12:31**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2017 09:37**	**Aliquot:**	**30.13 g**	**Final Volume:**	**1 mL**
Data File:	**s110717.B\s8k0710.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
83-32-9	Acenaphthene	U	1.75	ug/kg	1.75	3.50
208-96-8	Acenaphthylene	U	1.75	ug/kg	1.75	3.50
120-12-7	Anthracene	U	1.75	ug/kg	1.75	3.50
56-55-3	Benzo(a)anthracene		18.9	ug/kg	1.75	3.50
50-32-8	Benzo(a)pyrene		9.44	ug/kg	1.75	3.50
205-99-2	Benzo(b)fluoranthene		26.9	ug/kg	1.75	3.50
191-24-2	Benzo(ghi)perylene		6.29	ug/kg	1.75	3.50
207-08-9	Benzo(k)fluoranthene		10.5	ug/kg	1.75	3.50
218-01-9	Chrysene		27.3	ug/kg	1.75	3.50
53-70-3	Dibenzo(a,h)anthracene	J	3.15	ug/kg	1.75	3.50
206-44-0	Fluoranthene		35.7	ug/kg	1.75	3.50
86-73-7	Fluorene	U	1.75	ug/kg	1.75	3.50
193-39-5	Indeno(1,2,3-cd)pyrene		6.99	ug/kg	1.75	3.50
91-20-3	Naphthalene	U	1.05	ug/kg	1.05	3.50
85-01-8	Phenanthrene		25.5	ug/kg	1.75	3.50
129-00-0	Pyrene		28.3	ug/kg	1.75	3.50

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Date Collected:**	**10/30/2017 09:55**	**Matrix:**	**SOIL**
Lab Sample ID:	**436735009**	**Date Received:**	**11/01/2017 09:00**	**%Moisture:**	**6.1**
		Client:	**CPRC001**	**Project:**	**CPRC0F17002**
Client ID:	**B38W46**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1715120**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/07/2017 13:04**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2017 09:37**	**Aliquot:**	**30.16 g**	**Final Volume:**	**1 mL**
Data File:	**s110717.B\s8k0711.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
83-32-9	Acenaphthene	U	1.77	ug/kg	1.77	3.53
208-96-8	Acenaphthylene	U	1.77	ug/kg	1.77	3.53
120-12-7	Anthracene	U	1.77	ug/kg	1.77	3.53
56-55-3	Benzo(a)anthracene	U	1.77	ug/kg	1.77	3.53
50-32-8	Benzo(a)pyrene	U	1.77	ug/kg	1.77	3.53
205-99-2	Benzo(b)fluoranthene		3.53	ug/kg	1.77	3.53
191-24-2	Benzo(ghi)perylene	U	1.77	ug/kg	1.77	3.53
207-08-9	Benzo(k)fluoranthene	U	1.77	ug/kg	1.77	3.53
218-01-9	Chrysene	J	2.12	ug/kg	1.77	3.53
53-70-3	Dibenzo(a,h)anthracene	U	1.77	ug/kg	1.77	3.53
206-44-0	Fluoranthene	J	2.47	ug/kg	1.77	3.53
86-73-7	Fluorene	U	1.77	ug/kg	1.77	3.53
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.77	ug/kg	1.77	3.53
91-20-3	Naphthalene	U	1.06	ug/kg	1.06	3.53
85-01-8	Phenanthrene	U	1.77	ug/kg	1.77	3.53
129-00-0	Pyrene	J	2.47	ug/kg	1.77	3.53

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Date Collected:**	**10/30/2017 07:35**	**Matrix:**	**SOIL**
Lab Sample ID:	**436735010**	**Date Received:**	**11/01/2017 09:00**	**%Moisture:**	**0**
		Client:	**CPRC001**	**Project:**	**CPRC0F17002**
Client ID:	**B38W47**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1715120**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/07/2017 13:36**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2017 09:37**	**Aliquot:**	**30.05 g**	**Final Volume:**	**1 mL**
Data File:	**s110717.B\s8k0712.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
83-32-9	Acenaphthene	U	1.66	ug/kg	1.66	3.33
208-96-8	Acenaphthylene	U	1.66	ug/kg	1.66	3.33
120-12-7	Anthracene	U	1.66	ug/kg	1.66	3.33
56-55-3	Benzo(a)anthracene	U	1.66	ug/kg	1.66	3.33
50-32-8	Benzo(a)pyrene	U	1.66	ug/kg	1.66	3.33
205-99-2	Benzo(b)fluoranthene	U	1.66	ug/kg	1.66	3.33
191-24-2	Benzo(ghi)perylene	U	1.66	ug/kg	1.66	3.33
207-08-9	Benzo(k)fluoranthene	U	1.66	ug/kg	1.66	3.33
218-01-9	Chrysene	U	1.66	ug/kg	1.66	3.33
53-70-3	Dibenzo(a,h)anthracene	U	1.66	ug/kg	1.66	3.33
206-44-0	Fluoranthene	U	1.66	ug/kg	1.66	3.33
86-73-7	Fluorene	J	2.00	ug/kg	1.66	3.33
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.66	ug/kg	1.66	3.33
91-20-3	Naphthalene	U	0.999	ug/kg	0.999	3.33
85-01-8	Phenanthrene	U	1.66	ug/kg	1.66	3.33
129-00-0	Pyrene	U	1.66	ug/kg	1.66	3.33

Quality Control Summary

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

QC Summary

Report Date: November 7, 2017

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **436735**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch 1715120											
QC1203910371 LCS											
Acenaphthene	333			228	ug/kg		69*	(70%-130%)	JLD1	11/02/17	15:52
Acenaphthylene	333			212	ug/kg		64*	(70%-130%)			
Anthracene	333			219	ug/kg		66*	(70%-130%)			
Benzo(a)anthracene	333			232	ug/kg		70	(70%-130%)			
Benzo(a)pyrene	333			241	ug/kg		73	(70%-130%)			
Benzo(b)fluoranthene	333			260	ug/kg		78	(70%-130%)			
Benzo(ghi)perylene	333			205	ug/kg		62*	(70%-130%)			
Benzo(k)fluoranthene	333			285	ug/kg		86	(70%-130%)			
Chrysene	333			251	ug/kg		75	(70%-130%)			
Dibenzo(a,h)anthracene	333			240	ug/kg		72	(70%-130%)			
Fluoranthene	333			229	ug/kg		69*	(70%-130%)			
Fluorene	333			233	ug/kg		70	(70%-130%)			
Indeno(1,2,3-cd)pyrene	333			218	ug/kg		66*	(70%-130%)			

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QC Summary

Workorder: **436735**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatile-GC/MS										
Batch 1715120										
Naphthalene	333			249	ug/kg		75	(70%-130%)	JLD1	11/02/17 15:52
Phenanthrene	333			242	ug/kg		73	(70%-130%)		
Pyrene	333			229	ug/kg		69*	(70%-130%)		
**5-alpha-Androstane	166			115	ug/kg		69	(30%-118%)		
QC1203910370 MB										
Acenaphthene			U	1.67	ug/kg					11/02/17 15:20
Acenaphthylene			U	1.67	ug/kg					
Anthracene			U	1.67	ug/kg					
Benzo(a)anthracene			U	1.67	ug/kg					
Benzo(a)pyrene			U	1.67	ug/kg					
Benzo(b)fluoranthene			U	1.67	ug/kg					
Benzo(ghi)perylene			U	1.67	ug/kg					
Benzo(k)fluoranthene			U	1.67	ug/kg					
Chrysene			U	1.67	ug/kg					
Dibenzo(a,h)anthracene			U	1.67	ug/kg					
Fluoranthene			U	1.67	ug/kg					

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QC Summary

Workorder: **436735**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatile-GC/MS											
Batch 1715120											
Fluorene				U	1.67	ug/kg				JLD1	11/02/17 15:20
Indeno(1,2,3-cd)pyrene				U	1.67	ug/kg					
Naphthalene				U	1.00	ug/kg					
Phenanthrene				U	1.67	ug/kg					
Pyrene				U	1.67	ug/kg					
**5-alpha-Androstane	167				130	ug/kg		78	(30%-118%)		
QC1203910372 436735003 MS											
Acenaphthene	419	U	2.09		122	ug/kg		29	(18%-115%)		11/02/17 17:58
Acenaphthylene	419	U	2.09		117	ug/kg		28	(19%-116%)		
Anthracene	419	U	2.09		117	ug/kg		28	(23%-115%)		
Benzo(a)anthracene	419	J	2.51		148	ug/kg		35	(23%-124%)		
Benzo(a)pyrene	419	J	2.09		150	ug/kg		35	(20%-130%)		
Benzo(b)fluoranthene	419	J	3.76		184	ug/kg		43	(20%-134%)		
Benzo(ghi)perylene	419	U	2.09		136	ug/kg		32	(18%-118%)		
Benzo(k)fluoranthene	419	U	2.09		177	ug/kg		42	(23%-128%)		
Chrysene	419	J	2.93		155	ug/kg		36	(18%-121%)		

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QC Summary

Workorder: **436735**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatile-GC/MS											
Batch 1715120											
Dibenzo(a,h)anthracene	419	U	2.09		153	ug/kg		37	(12%-132%)	JLD1	11/02/17 17:58
Fluoranthene	419	J	3.76		212	ug/kg		50	(21%-124%)		
Fluorene	419	U	2.09		135	ug/kg		32	(21%-118%)		
Indeno(1,2,3-cd)pyrene	419	U	2.09		140	ug/kg		33	(11%-130%)		
Naphthalene	419	U	1.25		122	ug/kg		29	(14%-114%)		
Phenanthrene	419	U	2.09		245	ug/kg		58	(24%-106%)		
Pyrene	419	J	3.76		151	ug/kg		35	(16%-122%)		
**5-alpha-Androstane	210		106		82.6	ug/kg		39	(30%-118%)		
QC1203910373 436735003 MSD											
Acenaphthene	417	U	2.09		121	ug/kg	0	29	(0%-30%)		11/02/17 19:34
Acenaphthylene	417	U	2.09		120	ug/kg	3	29	(0%-30%)		
Anthracene	417	U	2.09		131	ug/kg	11	31	(0%-30%)		
Benzo(a)anthracene	417	J	2.51		147	ug/kg	1	35	(0%-30%)		
Benzo(a)pyrene	417	J	2.09		146	ug/kg	2	35	(0%-30%)		
Benzo(b)fluoranthene	417	J	3.76		186	ug/kg	1	44	(0%-30%)		
Benzo(ghi)perylene	417	U	2.09		120	ug/kg	12	29	(0%-30%)		

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QC Summary

Workorder: **436735**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatile-GC/MS											
Batch 1715120											
Benzo(k)fluoranthene	417	U	2.09		182	ug/kg	3	44	(0%-30%)	JLD1	11/02/17 19:34
Chrysene	417	J	2.93		155	ug/kg	0	36	(0%-30%)		
Dibenzo(a,h)anthracene	417	U	2.09		136	ug/kg	12	33	(0%-30%)		
Fluoranthene	417	J	3.76		220	ug/kg	4	52	(0%-30%)		
Fluorene	417	U	2.09		133	ug/kg	2	32	(0%-30%)		
Indeno(1,2,3-cd)pyrene	417	U	2.09		124	ug/kg	12	30	(0%-30%)		
Naphthalene	417	U	1.25		122	ug/kg	0	29	(0%-30%)		
Phenanthrene	417	U	2.09		137	ug/kg	57*	33	(0%-30%)		
Pyrene	417	J	3.76		143	ug/kg	5	33	(0%-30%)		
**5-alpha-Androstane	208		106		87.1	ug/kg		42	(30%-118%)		

Notes:

The Qualifiers in this report are defined as follows:

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

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QC Summary

Workorder: **436735**

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

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

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

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

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

o Analyte failed to recover within LCS limits (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.

Semi-Volatile

Surrogate Recovery Report

SDG Number: **GEL436735**

Matrix Type: **SOLID**

Sample ID	Client ID	5-alpha %REC
1203910370	MB for batch 1715115	78
1203910371	LCS for batch 1715115	69
436735001	B38W38	62
436735002	B38W39	63
436735003	B38W40	51
1203910372	B38W40MS	39
1203910373	B38W40MSD	42
436735004	B38W41	63
436735005	B38W42	64
436735006	B38W43	89
436735007	B38W44	67
436735008	B38W45	73
436735009	B38W46	73
436735010	B38W47	108

Surrogate	Acceptance Limits
5-alpha- = 5-alpha-Androstane	(30%-118%)

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

Pesticide Analysis

Case Narrative

GC Semivolatile Pesticide
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL436735
Work Order #: 436735

Product: **Organochlorine Pesticides and Chlorinated Hydrocarbons**
Analytical Method: SW846 3541/8081B
Analytical Procedure: GL-OA-E-041 REV# 18
Analytical Batch: 1715006

Preparation Method: SW846 3541
Preparation Procedure: GL-OA-E-066 REV# 8
Preparation Batch: 1715005

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

GEL Sample ID#	Client Sample Identification
436735001	B38W38
436735002	B38W39
436735003	B38W40
436735004	B38W41
436735005	B38W42
436735006	B38W43
436735007	B38W44
436735008	B38W45
436735009	B38W46
436735010	B38W47
1203910079	Method Blank (MB)
1203910080	Laboratory Control Sample (LCS)
1203910081	436735001(B38W38) Matrix Spike (MS)
1203910082	436735001(B38W38) 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.

Calibration Information

Continuing Calibration Verification (CCV) Requirements
Calibration verification standards (ICV or CCV) requirements have not been met for samples in this batch in this SDG. One or more target analytes failed acceptance criteria with a positive bias in the standards bracketing the samples in this SDG. These target analytes were not detected above the PQL in the associated environmental samples; therefore, the non-compliance had no adverse effect on the data.

Technical Information

Florisil

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

Miscellaneous Information

Manual Integrations
Samples 436735003 (B38W40) and 436735008 (B38W45) required manual integration to correctly position the baseline as set in the calibration standard injections.

Additional Comments

The Toxaphene and/or Chlordane standards were analyzed for this SDG as a retention time marker and pattern reference. A five-point calibration curve and calibration verification standard forms were not submitted in the data package since Toxaphene and/or Chlordane were not detected in the client samples.

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

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Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL436735 GEL Work Order: 436735

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: Jimin Cao **Name: Jimin Cao**

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

Sample Data Summary

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Date Collected:**	**10/30/2017 09:45**	**Matrix:**	**SOIL**
Lab Sample ID:	**436735001**	**Date Received:**	**11/01/2017 09:00**	**%Moisture:**	**7.9**
		Client:	**CPRC001**	**Project:**	**CPRC0F17002**
Client ID:	**B38W38**	**Method:**	**SW846 3541/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1715006**	**Inst:**	**ECD7A.I**	**Dilution:**	**1**
Run Date:	**11/13/2017 13:39**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2017 11:27**	**Aliquot:**	**30 g**	**Final Volume:**	**5 mL**
Data File:	**111317.B\e7k1326.D**	**Column:**	**1 CLPesticides**		
	111317.B\e7k1326.D		**2 CLPesticides2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
72-54-8	4,4'-DDD	U	0.362	ug/kg	0.362	1.45	1
72-55-9	4,4'-DDE	U	0.362	ug/kg	0.362	1.45	1
50-29-3	4,4'-DDT	U	0.362	ug/kg	0.362	1.45	1
309-00-2	Aldrin	U	0.181	ug/kg	0.181	0.724	1
60-57-1	Dieldrin	U	0.362	ug/kg	0.362	1.45	1
959-98-8	Endosulfan I	U	0.181	ug/kg	0.181	0.724	1
33213-65-9	Endosulfan II	U	0.362	ug/kg	0.362	1.45	1
1031-07-8	Endosulfan sulfate	U	0.362	ug/kg	0.362	1.45	1
72-20-8	Endrin	U	0.362	ug/kg	0.362	1.45	1
7421-93-4	Endrin aldehyde	U	0.362	ug/kg	0.362	1.45	1
53494-70-5	Endrin ketone	U	0.362	ug/kg	0.362	1.45	1
76-44-8	Heptachlor	U	0.181	ug/kg	0.181	0.724	1
1024-57-3	Heptachlor epoxide	U	0.181	ug/kg	0.181	0.724	1
72-43-5	Methoxychlor	U	1.81	ug/kg	1.81	7.24	1
8001-35-2	Toxaphene	U	6.03	ug/kg	6.03	18.1	1
319-84-6	alpha-BHC	U	0.181	ug/kg	0.181	0.724	1
319-85-7	beta-BHC	U	0.181	ug/kg	0.181	0.724	1
5103-71-9	cis-Chlordane	U	0.181	ug/kg	0.181	0.724	1
319-86-8	delta-BHC	U	0.181	ug/kg	0.181	0.724	1
58-89-9	gamma-BHC (Lindane)	U	0.181	ug/kg	0.181	0.724	1
5103-74-2	trans-Chlordane	U	0.181	ug/kg	0.181	0.724	1

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Date Collected:**	**10/30/2017 09:55**	**Matrix:**	**SOIL**
Lab Sample ID:	**436735002**	**Date Received:**	**11/01/2017 09:00**	**%Moisture:**	**6.2**
		Client:	**CPRC001**	**Project:**	**CPRC0F17002**
Client ID:	**B38W39**	**Method:**	**SW846 3541/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1715006**	**Inst:**	**ECD7A.I**	**Dilution:**	**1**
Run Date:	**11/13/2017 14:28**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2017 11:27**	**Aliquot:**	**30.08 g**	**Final Volume:**	**5 mL**
Data File:	**111317.B\e7k1329.D**	**Column:**	**1 CLPesticides**		
	111317.B\e7k1329.D		**2 CLPesticides2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
72-54-8	4,4'-DDD	U	0.355	ug/kg	0.355	1.42	1
72-55-9	4,4'-DDE	U	0.355	ug/kg	0.355	1.42	1
50-29-3	4,4'-DDT	U	0.355	ug/kg	0.355	1.42	1
309-00-2	Aldrin	U	0.177	ug/kg	0.177	0.709	1
60-57-1	Dieldrin	U	0.355	ug/kg	0.355	1.42	1
959-98-8	Endosulfan I	U	0.177	ug/kg	0.177	0.709	1
33213-65-9	Endosulfan II	U	0.355	ug/kg	0.355	1.42	1
1031-07-8	Endosulfan sulfate	U	0.355	ug/kg	0.355	1.42	1
72-20-8	Endrin	U	0.355	ug/kg	0.355	1.42	1
7421-93-4	Endrin aldehyde	U	0.355	ug/kg	0.355	1.42	1
53494-70-5	Endrin ketone	U	0.355	ug/kg	0.355	1.42	1
76-44-8	Heptachlor	U	0.177	ug/kg	0.177	0.709	1
1024-57-3	Heptachlor epoxide	U	0.177	ug/kg	0.177	0.709	1
72-43-5	Methoxychlor	U	1.77	ug/kg	1.77	7.09	1
8001-35-2	Toxaphene	U	5.90	ug/kg	5.90	17.7	1
319-84-6	alpha-BHC	U	0.177	ug/kg	0.177	0.709	1
319-85-7	beta-BHC	U	0.177	ug/kg	0.177	0.709	1
5103-71-9	cis-Chlordane	U	0.177	ug/kg	0.177	0.709	1
319-86-8	delta-BHC	U	0.177	ug/kg	0.177	0.709	1
58-89-9	gamma-BHC (Lindane)	U	0.177	ug/kg	0.177	0.709	1
5103-74-2	trans-Chlordane	U	0.177	ug/kg	0.177	0.709	1

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Date Collected:**	**10/30/2017 10:07**	**Matrix:**	**SOIL**
Lab Sample ID:	**436735003**	**Date Received:**	**11/01/2017 09:00**	**%Moisture:**	**20.6**
		Client:	**CPRC001**	**Project:**	**CPRC0F17002**
Client ID:	**B38W40**	**Method:**	**SW846 3541/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1715006**	**Inst:**	**ECD7A.I**	**Dilution:**	**1**
Run Date:	**11/13/2017 14:44**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2017 11:27**	**Aliquot:**	**30.29 g**	**Final Volume:**	**5 mL**
Data File:	**111317.B\e7k1330.D**	**Column:**	**1 CLPesticides**		
	111317.B\e7k1330.D		**2 CLPesticides2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
72-54-8	4,4'-DDD	U	0.416	ug/kg	0.416	1.66	1
72-55-9	4,4'-DDE	J	1.46	ug/kg	0.416	1.66	2
50-29-3	4,4'-DDT		2.02	ug/kg	0.416	1.66	1
309-00-2	Aldrin	U	0.208	ug/kg	0.208	0.831	1
60-57-1	Dieldrin	U	0.416	ug/kg	0.416	1.66	1
959-98-8	Endosulfan I	U	0.208	ug/kg	0.208	0.831	1
33213-65-9	Endosulfan II	U	0.416	ug/kg	0.416	1.66	1
1031-07-8	Endosulfan sulfate	U	0.416	ug/kg	0.416	1.66	1
72-20-8	Endrin	U	0.416	ug/kg	0.416	1.66	1
7421-93-4	Endrin aldehyde	U	0.416	ug/kg	0.416	1.66	1
53494-70-5	Endrin ketone	U	0.416	ug/kg	0.416	1.66	1
76-44-8	Heptachlor	U	0.208	ug/kg	0.208	0.831	1
1024-57-3	Heptachlor epoxide	U	0.208	ug/kg	0.208	0.831	1
72-43-5	Methoxychlor	U	2.08	ug/kg	2.08	8.31	1
8001-35-2	Toxaphene	U	6.92	ug/kg	6.92	20.8	1
319-84-6	alpha-BHC	U	0.208	ug/kg	0.208	0.831	1
319-85-7	beta-BHC	U	0.208	ug/kg	0.208	0.831	1
5103-71-9	cis-Chlordane	U	0.208	ug/kg	0.208	0.831	1
319-86-8	delta-BHC	U	0.208	ug/kg	0.208	0.831	1
58-89-9	gamma-BHC (Lindane)	U	0.208	ug/kg	0.208	0.831	1
5103-74-2	trans-Chlordane	U	0.208	ug/kg	0.208	0.831	1

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Date Collected:**	**10/30/2017 10:15**	**Matrix:**	**SOIL**
Lab Sample ID:	**436735004**	**Date Received:**	**11/01/2017 09:00**	**%Moisture:**	**5.3**
		Client:	**CPRC001**	**Project:**	**CPRC0F17002**
Client ID:	**B38W41**	**Method:**	**SW846 3541/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1715006**	**Inst:**	**ECD7A.I**	**Dilution:**	**1**
Run Date:	**11/13/2017 15:00**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2017 11:27**	**Aliquot:**	**30.01 g**	**Final Volume:**	**5 mL**
Data File:	**111317.B\e7k1331.D**	**Column:**	**1 CLPesticides**		
	111317.B\e7k1331.D		**2 CLPesticides2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
72-54-8	4,4'-DDD	U	0.352	ug/kg	0.352	1.41	1
72-55-9	4,4'-DDE	U	0.352	ug/kg	0.352	1.41	1
50-29-3	4,4'-DDT	U	0.352	ug/kg	0.352	1.41	1
309-00-2	Aldrin	U	0.176	ug/kg	0.176	0.704	1
60-57-1	Dieldrin	U	0.352	ug/kg	0.352	1.41	1
959-98-8	Endosulfan I	U	0.176	ug/kg	0.176	0.704	1
33213-65-9	Endosulfan II	U	0.352	ug/kg	0.352	1.41	1
1031-07-8	Endosulfan sulfate	U	0.352	ug/kg	0.352	1.41	1
72-20-8	Endrin	U	0.352	ug/kg	0.352	1.41	1
7421-93-4	Endrin aldehyde	U	0.352	ug/kg	0.352	1.41	1
53494-70-5	Endrin ketone	U	0.352	ug/kg	0.352	1.41	1
76-44-8	Heptachlor	U	0.176	ug/kg	0.176	0.704	1
1024-57-3	Heptachlor epoxide	U	0.176	ug/kg	0.176	0.704	1
72-43-5	Methoxychlor	U	1.76	ug/kg	1.76	7.04	1
8001-35-2	Toxaphene	U	5.86	ug/kg	5.86	17.6	1
319-84-6	alpha-BHC	U	0.176	ug/kg	0.176	0.704	1
319-85-7	beta-BHC	U	0.176	ug/kg	0.176	0.704	1
5103-71-9	cis-Chlordane	U	0.176	ug/kg	0.176	0.704	1
319-86-8	delta-BHC	U	0.176	ug/kg	0.176	0.704	1
58-89-9	gamma-BHC (Lindane)	U	0.176	ug/kg	0.176	0.704	1
5103-74-2	trans-Chlordane	U	0.176	ug/kg	0.176	0.704	1

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Date Collected:**	**10/30/2017 10:25**	**Matrix:**	**SOIL**
Lab Sample ID:	**436735005**	**Date Received:**	**11/01/2017 09:00**	**%Moisture:**	**5.8**
		Client:	**CPRC001**	**Project:**	**CPRC0F17002**
Client ID:	**B38W42**	**Method:**	**SW846 3541/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1715006**	**Inst:**	**ECD7A.I**	**Dilution:**	**1**
Run Date:	**11/13/2017 15:16**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2017 11:27**	**Aliquot:**	**30 g**	**Final Volume:**	**5 mL**
Data File:	**111317.B\e7k1332.D**	**Column:**	**1 CLPesticides**		
	111317.B\e7k1332.D		**2 CLPesticides2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
72-54-8	4,4'-DDD	U	0.354	ug/kg	0.354	1.42	1
72-55-9	4,4'-DDE	U	0.354	ug/kg	0.354	1.42	1
50-29-3	4,4'-DDT	U	0.354	ug/kg	0.354	1.42	1
309-00-2	Aldrin	U	0.177	ug/kg	0.177	0.708	1
60-57-1	Dieldrin	U	0.354	ug/kg	0.354	1.42	1
959-98-8	Endosulfan I	U	0.177	ug/kg	0.177	0.708	1
33213-65-9	Endosulfan II	U	0.354	ug/kg	0.354	1.42	1
1031-07-8	Endosulfan sulfate	U	0.354	ug/kg	0.354	1.42	1
72-20-8	Endrin	U	0.354	ug/kg	0.354	1.42	1
7421-93-4	Endrin aldehyde	U	0.354	ug/kg	0.354	1.42	1
53494-70-5	Endrin ketone	U	0.354	ug/kg	0.354	1.42	1
76-44-8	Heptachlor	U	0.177	ug/kg	0.177	0.708	1
1024-57-3	Heptachlor epoxide	U	0.177	ug/kg	0.177	0.708	1
72-43-5	Methoxychlor	U	1.77	ug/kg	1.77	7.08	1
8001-35-2	Toxaphene	U	5.89	ug/kg	5.89	17.7	1
319-84-6	alpha-BHC	U	0.177	ug/kg	0.177	0.708	1
319-85-7	beta-BHC	U	0.177	ug/kg	0.177	0.708	1
5103-71-9	cis-Chlordane	U	0.177	ug/kg	0.177	0.708	1
319-86-8	delta-BHC	U	0.177	ug/kg	0.177	0.708	1
58-89-9	gamma-BHC (Lindane)	U	0.177	ug/kg	0.177	0.708	1
5103-74-2	trans-Chlordane	U	0.177	ug/kg	0.177	0.708	1

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Date Collected:**	**10/30/2017 10:30**	**Matrix:**	**SOIL**
Lab Sample ID:	**436735006**	**Date Received:**	**11/01/2017 09:00**	**%Moisture:**	**6.7**
		Client:	**CPRC001**	**Project:**	**CPRC0F17002**
Client ID:	**B38W43**	**Method:**	**SW846 3541/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1715006**	**Inst:**	**ECD7A.I**	**Dilution:**	**1**
Run Date:	**11/13/2017 15:33**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2017 11:27**	**Aliquot:**	**30.15 g**	**Final Volume:**	**5 mL**
Data File:	**111317.B\e7k1333.D**	**Column:**	**1 CLPesticides**		
	111317.B\e7k1333.D		**2 CLPesticides2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
72-54-8	4,4'-DDD	U	0.356	ug/kg	0.356	1.42	1
72-55-9	4,4'-DDE	U	0.356	ug/kg	0.356	1.42	1
50-29-3	4,4'-DDT	U	0.356	ug/kg	0.356	1.42	1
309-00-2	Aldrin	U	0.178	ug/kg	0.178	0.711	1
60-57-1	Dieldrin	U	0.356	ug/kg	0.356	1.42	1
959-98-8	Endosulfan I	U	0.178	ug/kg	0.178	0.711	1
33213-65-9	Endosulfan II	U	0.356	ug/kg	0.356	1.42	1
1031-07-8	Endosulfan sulfate	U	0.356	ug/kg	0.356	1.42	1
72-20-8	Endrin	U	0.356	ug/kg	0.356	1.42	1
7421-93-4	Endrin aldehyde	U	0.356	ug/kg	0.356	1.42	1
53494-70-5	Endrin ketone	U	0.356	ug/kg	0.356	1.42	1
76-44-8	Heptachlor	U	0.178	ug/kg	0.178	0.711	1
1024-57-3	Heptachlor epoxide	U	0.178	ug/kg	0.178	0.711	1
72-43-5	Methoxychlor	U	1.78	ug/kg	1.78	7.11	1
8001-35-2	Toxaphene	U	5.92	ug/kg	5.92	17.8	1
319-84-6	alpha-BHC	U	0.178	ug/kg	0.178	0.711	1
319-85-7	beta-BHC	U	0.178	ug/kg	0.178	0.711	1
5103-71-9	cis-Chlordane	U	0.178	ug/kg	0.178	0.711	1
319-86-8	delta-BHC	U	0.178	ug/kg	0.178	0.711	1
58-89-9	gamma-BHC (Lindane)	U	0.178	ug/kg	0.178	0.711	1
5103-74-2	trans-Chlordane	U	0.178	ug/kg	0.178	0.711	1

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Date Collected:**	**10/30/2017 10:37**	**Matrix:**	**SOIL**
Lab Sample ID:	**436735007**	**Date Received:**	**11/01/2017 09:00**	**%Moisture:**	**5.1**
		Client:	**CPRC001**	**Project:**	**CPRC0F17002**
Client ID:	**B38W44**	**Method:**	**SW846 3541/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1715006**	**Inst:**	**ECD7A.I**	**Dilution:**	**1**
Run Date:	**11/13/2017 16:21**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2017 11:27**	**Aliquot:**	**30.2 g**	**Final Volume:**	**5 mL**
Data File:	**111317.B\e7k1336.D**	**Column:**	**1 CLPesticides**		
	111317.B\e7k1336.D		**2 CLPesticides2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
72-54-8	4,4'-DDD	U	0.349	ug/kg	0.349	1.40	1
72-55-9	4,4'-DDE	U	0.349	ug/kg	0.349	1.40	1
50-29-3	4,4'-DDT	U	0.349	ug/kg	0.349	1.40	1
309-00-2	Aldrin	U	0.174	ug/kg	0.174	0.698	1
60-57-1	Dieldrin	U	0.349	ug/kg	0.349	1.40	1
959-98-8	Endosulfan I	U	0.174	ug/kg	0.174	0.698	1
33213-65-9	Endosulfan II	U	0.349	ug/kg	0.349	1.40	1
1031-07-8	Endosulfan sulfate	U	0.349	ug/kg	0.349	1.40	1
72-20-8	Endrin	U	0.349	ug/kg	0.349	1.40	1
7421-93-4	Endrin aldehyde	U	0.349	ug/kg	0.349	1.40	1
53494-70-5	Endrin ketone	U	0.349	ug/kg	0.349	1.40	1
76-44-8	Heptachlor	U	0.174	ug/kg	0.174	0.698	1
1024-57-3	Heptachlor epoxide	U	0.174	ug/kg	0.174	0.698	1
72-43-5	Methoxychlor	U	1.74	ug/kg	1.74	6.98	1
8001-35-2	Toxaphene	U	5.81	ug/kg	5.81	17.4	1
319-84-6	alpha-BHC	U	0.174	ug/kg	0.174	0.698	1
319-85-7	beta-BHC	U	0.174	ug/kg	0.174	0.698	1
5103-71-9	cis-Chlordane	U	0.174	ug/kg	0.174	0.698	1
319-86-8	delta-BHC	U	0.174	ug/kg	0.174	0.698	1
58-89-9	gamma-BHC (Lindane)	U	0.174	ug/kg	0.174	0.698	1
5103-74-2	trans-Chlordane	U	0.174	ug/kg	0.174	0.698	1

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Date Collected:**	**10/30/2017 10:45**	**Matrix:**	**SOIL**
Lab Sample ID:	**436735008**	**Date Received:**	**11/01/2017 09:00**	**%Moisture:**	**5.1**
		Client:	**CPRC001**	**Project:**	**CPRC0F17002**
Client ID:	**B38W45**	**Method:**	**SW846 3541/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1715006**	**Inst:**	**ECD7A.I**	**Dilution:**	**1**
Run Date:	**11/13/2017 16:38**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2017 11:27**	**Aliquot:**	**30.02 g**	**Final Volume:**	**5 mL**
Data File:	**111317.B\e7k1337.D**	**Column:**	**1 CLPesticides**		
	111317.B\e7k1337.D		**2 CLPesticides2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
72-54-8	4,4'-DDD	U	0.351	ug/kg	0.351	1.40	1
72-55-9	4,4'-DDE	U	0.351	ug/kg	0.351	1.40	1
50-29-3	4,4'-DDT	U	0.351	ug/kg	0.351	1.40	1
309-00-2	Aldrin	U	0.176	ug/kg	0.176	0.702	1
60-57-1	Dieldrin	U	0.351	ug/kg	0.351	1.40	1
959-98-8	Endosulfan I	U	0.176	ug/kg	0.176	0.702	1
33213-65-9	Endosulfan II	U	0.351	ug/kg	0.351	1.40	1
1031-07-8	Endosulfan sulfate	U	0.351	ug/kg	0.351	1.40	1
72-20-8	Endrin	U	0.351	ug/kg	0.351	1.40	1
7421-93-4	Endrin aldehyde	J	1.17	ug/kg	0.351	1.40	2
53494-70-5	Endrin ketone	U	0.351	ug/kg	0.351	1.40	1
76-44-8	Heptachlor	U	0.176	ug/kg	0.176	0.702	1
1024-57-3	Heptachlor epoxide	U	0.176	ug/kg	0.176	0.702	1
72-43-5	Methoxychlor	U	1.76	ug/kg	1.76	7.02	1
8001-35-2	Toxaphene	U	5.84	ug/kg	5.84	17.6	1
319-84-6	alpha-BHC	U	0.176	ug/kg	0.176	0.702	1
319-85-7	beta-BHC	U	0.176	ug/kg	0.176	0.702	1
5103-71-9	cis-Chlordane	U	0.176	ug/kg	0.176	0.702	1
319-86-8	delta-BHC	U	0.176	ug/kg	0.176	0.702	1
58-89-9	gamma-BHC (Lindane)	U	0.176	ug/kg	0.176	0.702	1
5103-74-2	trans-Chlordane	U	0.176	ug/kg	0.176	0.702	1

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Date Collected:**	**10/30/2017 09:55**	**Matrix:**	**SOIL**
Lab Sample ID:	**436735009**	**Date Received:**	**11/01/2017 09:00**	**%Moisture:**	**6.1**
		Client:	**CPRC001**	**Project:**	**CPRC0F17002**
Client ID:	**B38W46**	**Method:**	**SW846 3541/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1715006**	**Inst:**	**ECD7A.I**	**Dilution:**	**1**
Run Date:	**11/13/2017 16:54**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2017 11:27**	**Aliquot:**	**30.4 g**	**Final Volume:**	**5 mL**
Data File:	**111317.B\e7k1338.D**	**Column:**	**1 CLPesticides**		
	111317.B\e7k1338.D		**2 CLPesticides2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
72-54-8	4,4'-DDD	U	0.350	ug/kg	0.350	1.40	1
72-55-9	4,4'-DDE	U	0.350	ug/kg	0.350	1.40	1
50-29-3	4,4'-DDT	U	0.350	ug/kg	0.350	1.40	1
309-00-2	Aldrin	U	0.175	ug/kg	0.175	0.701	1
60-57-1	Dieldrin	U	0.350	ug/kg	0.350	1.40	1
959-98-8	Endosulfan I	U	0.175	ug/kg	0.175	0.701	1
33213-65-9	Endosulfan II	U	0.350	ug/kg	0.350	1.40	1
1031-07-8	Endosulfan sulfate	U	0.350	ug/kg	0.350	1.40	1
72-20-8	Endrin	U	0.350	ug/kg	0.350	1.40	1
7421-93-4	Endrin aldehyde	U	0.350	ug/kg	0.350	1.40	1
53494-70-5	Endrin ketone	U	0.350	ug/kg	0.350	1.40	1
76-44-8	Heptachlor	U	0.175	ug/kg	0.175	0.701	1
1024-57-3	Heptachlor epoxide	U	0.175	ug/kg	0.175	0.701	1
72-43-5	Methoxychlor	U	1.75	ug/kg	1.75	7.01	1
8001-35-2	Toxaphene	U	5.83	ug/kg	5.83	17.5	1
319-84-6	alpha-BHC	U	0.175	ug/kg	0.175	0.701	1
319-85-7	beta-BHC	U	0.175	ug/kg	0.175	0.701	1
5103-71-9	cis-Chlordane	U	0.175	ug/kg	0.175	0.701	1
319-86-8	delta-BHC	U	0.175	ug/kg	0.175	0.701	1
58-89-9	gamma-BHC (Lindane)	U	0.175	ug/kg	0.175	0.701	1
5103-74-2	trans-Chlordane	U	0.175	ug/kg	0.175	0.701	1

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Date Collected:**	**10/30/2017 07:35**	**Matrix:**	**SOIL**
Lab Sample ID:	**436735010**	**Date Received:**	**11/01/2017 09:00**	**%Moisture:**	**0**
		Client:	**CPRC001**	**Project:**	**CPRC0F17002**
Client ID:	**B38W47**	**Method:**	**SW846 3541/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1715006**	**Inst:**	**ECD7A.I**	**Dilution:**	**1**
Run Date:	**11/13/2017 17:10**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2017 11:27**	**Aliquot:**	**30.35 g**	**Final Volume:**	**5 mL**
Data File:	**111317.B\e7k1339.D**	**Column:**	**1 CLPesticides**		
	111317.B\e7k1339.D		**2 CLPesticides2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
72-54-8	4,4'-DDD	U	0.330	ug/kg	0.330	1.32	1
72-55-9	4,4'-DDE	U	0.330	ug/kg	0.330	1.32	1
50-29-3	4,4'-DDT	U	0.330	ug/kg	0.330	1.32	1
309-00-2	Aldrin	U	0.165	ug/kg	0.165	0.659	1
60-57-1	Dieldrin	U	0.330	ug/kg	0.330	1.32	1
959-98-8	Endosulfan I	U	0.165	ug/kg	0.165	0.659	1
33213-65-9	Endosulfan II	U	0.330	ug/kg	0.330	1.32	1
1031-07-8	Endosulfan sulfate	U	0.330	ug/kg	0.330	1.32	1
72-20-8	Endrin	U	0.330	ug/kg	0.330	1.32	1
7421-93-4	Endrin aldehyde	U	0.330	ug/kg	0.330	1.32	1
53494-70-5	Endrin ketone	U	0.330	ug/kg	0.330	1.32	1
76-44-8	Heptachlor	U	0.165	ug/kg	0.165	0.659	1
1024-57-3	Heptachlor epoxide	U	0.165	ug/kg	0.165	0.659	1
72-43-5	Methoxychlor	U	1.65	ug/kg	1.65	6.59	1
8001-35-2	Toxaphene	U	5.49	ug/kg	5.49	16.5	1
319-84-6	alpha-BHC	U	0.165	ug/kg	0.165	0.659	1
319-85-7	beta-BHC	U	0.165	ug/kg	0.165	0.659	1
5103-71-9	cis-Chlordane	U	0.165	ug/kg	0.165	0.659	1
319-86-8	delta-BHC	U	0.165	ug/kg	0.165	0.659	1
58-89-9	gamma-BHC (Lindane)	U	0.165	ug/kg	0.165	0.659	1
5103-74-2	trans-Chlordane	U	0.165	ug/kg	0.165	0.659	1

Quality Control Summary

Surrogate Recovery Report

SDG Number: **GEL436735**

Matrix Type: **SOLID**

Sample ID	Client ID	4CMX 1 %REC #	4CMX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #
1203910079	MB for batch 1715005	72	74	76	75
1203910080	LCS for batch 1715005	82	84	89	86
436735001	B38W38	69	71	76	77
1203910081	B38W38MS	75	79	87	86
1203910082	B38W38MSD	71	71	82	81
436735002	B38W39	84	85	91	89
436735003	B38W40	78	80	80	78
436735004	B38W41	82	83	89	86
436735005	B38W42	79	81	82	81
436735006	B38W43	80	79	81	82
436735007	B38W44	88	88	91	90
436735008	B38W45	85	85	90	117
436735009	B38W46	87	87	95	95
436735010	B38W47	52	55	84	83

Surrogate		Acceptance Limits
4CMX	= 4cmx	(27%-121%)
DCB	= Decachlorobiphenyl	(30%-136%)

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

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QC Summary

Report Date: November 14, 2017

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **436735**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatiles-Pesticide											
Batch 1715006											
QC1203910080 LCS											
4,4'-DDD	41.7			42.5	ug/kg		102	(70%-130%)	JXM	11/13/17	13:23
4,4'-DDE	41.7			40.7	ug/kg		98	(70%-130%)			
4,4'-DDT	41.7			43.0	ug/kg		103	(70%-130%)			
Aldrin	16.7			14.0	ug/kg		84	(70%-130%)			
Dieldrin	41.7			38.8	ug/kg		93	(70%-130%)			
Endosulfan I	16.7			12.0	ug/kg		72	(70%-130%)			
Endosulfan II	41.7			31.5	ug/kg		76	(70%-130%)			
Endosulfan sulfate	41.7			40.8	ug/kg		98	(70%-130%)			
Endrin	41.7			42.4	ug/kg		102	(70%-130%)			
Endrin aldehyde	41.7			36.3	ug/kg		87	(70%-130%)			
Endrin ketone	41.7			38.8	ug/kg		93	(70%-130%)			
Heptachlor	16.7			14.4	ug/kg		86	(70%-130%)			
Heptachlor epoxide	16.7			13.2	ug/kg		79	(70%-130%)			

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QC Summary

Workorder: **436735**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatiles-Pesticide										
Batch 1715006										
Methoxychlor	167			165	ug/kg		99	(70%-130%)	JXM	11/13/17 13:23
alpha-BHC	16.7			14.1	ug/kg		85	(70%-130%)		
beta-BHC	16.7			13.0	ug/kg		78	(70%-130%)		
cis-Chlordane	16.7			15.4	ug/kg		93	(70%-130%)		
delta-BHC	16.7			15.1	ug/kg		91	(70%-130%)		
gamma-BHC (Lindane)	16.7			14.1	ug/kg		85	(70%-130%)		
trans-Chlordane	16.7			12.8	ug/kg		77	(70%-130%)		
**4cmx	33.3			27.4	ug/kg		82	(27%-121%)		
**Decachlorobiphenyl	33.3			28.8	ug/kg		86	(30%-136%)		
QC1203910079 MB										
4,4'-DDD			U	0.333	ug/kg					11/13/17 13:07
4,4'-DDE			U	0.333	ug/kg					
4,4'-DDT			U	0.333	ug/kg					
Aldrin			U	0.166	ug/kg					
Dieldrin			U	0.333	ug/kg					
Endosulfan I			U	0.166	ug/kg					

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QC Summary

Workorder: **436735**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatiles-Pesticide											
Batch 1715006											
Endosulfan II			U	0.333	ug/kg				JXM	11/13/17	13:07
Endosulfan sulfate			U	0.333	ug/kg						
Endrin			U	0.333	ug/kg						
Endrin aldehyde			U	0.333	ug/kg						
Endrin ketone			U	0.333	ug/kg						
Heptachlor			U	0.166	ug/kg						
Heptachlor epoxide			U	0.166	ug/kg						
Methoxychlor			U	1.66	ug/kg						
Toxaphene			U	5.54	ug/kg						
alpha-BHC			U	0.166	ug/kg						
beta-BHC			U	0.166	ug/kg						
cis-Chlordane			U	0.166	ug/kg						
delta-BHC			U	0.166	ug/kg						
gamma-BHC (Lindane)			U	0.166	ug/kg						
trans-Chlordane			U	0.166	ug/kg						

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QC Summary

Workorder: **436735**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatiles-Pesticide											
Batch 1715006											
**4cmx	33.3				23.8	ug/kg		72	(27%-121%)	JXM	11/13/17 13:07
**Decachlorobiphenyl	33.3				25.0	ug/kg		75	(30%-136%)		
QC1203910081 436735001 MS											
4,4'-DDD	45.1	U	0.362		43.2	ug/kg		96	(17%-156%)		11/13/17 13:55
4,4'-DDE	45.1	U	0.362		43.2	ug/kg		96	(15%-139%)		
4,4'-DDT	45.1	U	0.362		44.4	ug/kg		99	(11%-137%)		
Aldrin	18.0	U	0.181		14.3	ug/kg		79	(21%-119%)		
Dieldrin	45.1	U	0.362		39.8	ug/kg		88	(22%-134%)		
Endosulfan I	18.0	U	0.181		12.5	ug/kg		70	(15%-126%)		
Endosulfan II	45.1	U	0.362		31.9	ug/kg		71	(20%-132%)		
Endosulfan sulfate	45.1	U	0.362		41.4	ug/kg		92	(17%-138%)		
Endrin	45.1	U	0.362		44.0	ug/kg		98	(24%-148%)		
Endrin aldehyde	45.1	U	0.362		36.8	ug/kg		82	(18%-132%)		
Endrin ketone	45.1	U	0.362		39.3	ug/kg		87	(17%-135%)		
Heptachlor	18.0	U	0.181		14.8	ug/kg		82	(16%-128%)		
Heptachlor epoxide	18.0	U	0.181		14.6	ug/kg		81	(14%-133%)		

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QC Summary

Workorder: **436735**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatiles-Pesticide											
Batch 1715006											
Methoxychlor	180	U	1.81		171	ug/kg		95	(15%-156%)	JXM	11/13/17 13:55
alpha-BHC	18.0	U	0.181		14.1	ug/kg		78	(14%-126%)		
beta-BHC	18.0	U	0.181		12.9	ug/kg		72	(14%-143%)		
cis-Chlordane	18.0	U	0.181		16.1	ug/kg		90	(14%-138%)		
delta-BHC	18.0	U	0.181		14.8	ug/kg		82	(17%-138%)		
gamma-BHC (Lindane)	18.0	U	0.181		14.1	ug/kg		78	(16%-126%)		
trans-Chlordane	18.0	U	0.181		13.4	ug/kg		74	(15%-137%)		
**4cmx	36.0		25.0		27.1	ug/kg		75	(27%-121%)		
**Decachlorobiphenyl	36.0		27.6		31.3	ug/kg		87	(30%-136%)		
QC1203910082 436735001 MSD											
4,4'-DDD	45.1	U	0.362		40.7	ug/kg	6	90	(0%-30%)		11/13/17 14:12
4,4'-DDE	45.1	U	0.362		40.2	ug/kg	7	89	(0%-30%)		
4,4'-DDT	45.1	U	0.362		41.0	ug/kg	8	91	(0%-30%)		
Aldrin	18.0	U	0.181		13.1	ug/kg	9	73	(0%-30%)		
Dieldrin	45.1	U	0.362		37.1	ug/kg	7	82	(0%-30%)		
Endosulfan I	18.0	U	0.181		11.7	ug/kg	7	65	(0%-30%)		

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QC Summary

Workorder: **436735**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatiles-Pesticide											
Batch 1715006											
Endosulfan II	45.1	U	0.362		30.1	ug/kg	6	67	(0%-30%)	JXM	11/13/17 14:12
Endosulfan sulfate	45.1	U	0.362		40.8	ug/kg	2	91	(0%-30%)		
Endrin	45.1	U	0.362		40.8	ug/kg	7	91	(0%-30%)		
Endrin aldehyde	45.1	U	0.362		35.4	ug/kg	4	79	(0%-30%)		
Endrin ketone	45.1	U	0.362		38.0	ug/kg	3	84	(0%-30%)		
Heptachlor	18.0	U	0.181		13.6	ug/kg	8	76	(0%-30%)		
Heptachlor epoxide	18.0	U	0.181		13.7	ug/kg	6	76	(0%-30%)		
Methoxychlor	180	U	1.81		158	ug/kg	8	88	(0%-30%)		
alpha-BHC	18.0	U	0.181		13.1	ug/kg	7	73	(0%-30%)		
beta-BHC	18.0	U	0.181		13.0	ug/kg	1	72	(0%-30%)		
cis-Chlordane	18.0	U	0.181		15.1	ug/kg	7	84	(0%-30%)		
delta-BHC	18.0	U	0.181		15.0	ug/kg	1	83	(0%-30%)		
gamma-BHC (Lindane)	18.0	U	0.181		13.4	ug/kg	5	75	(0%-30%)		
trans-Chlordane	18.0	U	0.181		12.6	ug/kg	6	70	(0%-30%)		
**4cmx	36.0		25.0		25.6	ug/kg		71	(27%-121%)		

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QC Summary

Workorder: 436735

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatiles-Pesticide											
Batch 1715006											
**Decachlorobiphenyl	36.0	27.6		29.4	ug/kg		82	(30%-136%)	JXM	11/13/17	14:12

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 (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.

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL436735
Work Order #: 436735

Product: **Determination of Metals by ICP**
Analytical Method: SW846 3050B/6010D
Analytical Procedure: GL-MA-E-013 REV# 30
Analytical Batch: 1714818

Product: **Determination of Metals by ICP-MS**
Analytical Method: SW846 3050B/6020B
Analytical Procedure: GL-MA-E-014 REV# 32
Analytical Batch: 1714821

Product: **Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer**
Analytical Method: 7471_HG_CVAA
Analytical Procedure: GL-MA-E-010 REV# 36
Analytical Batch: 1716417

Preparation Method: SW846 3050B
Preparation Procedure: GL-MA-E-009 REV# 26
Preparation Batches: 1714817 and 1714820

Preparation Method: SW846 7471B Prep
Preparation Procedure: GL-MA-E-010 REV# 36
Preparation Batch: 1716416

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

GEL Sample ID#	Client Sample Identification
436735001	B38W38
436735002	B38W39
436735003	B38W40
436735004	B38W41
436735005	B38W42
436735006	B38W43
436735007	B38W44
436735008	B38W45
436735009	B38W46
436735010	B38W47
1203909672	Method Blank (MB)**ICP**
1203909673	Laboratory Control Sample (LCS)
1203909676	436735001(B38W38L) Serial Dilution (SD)
1203909674	436735001(B38W38D) Sample Duplicate (DUP)
1203909675	436735001(B38W38S) Matrix Spike (MS)
1203918622	436735001(B38W38PS) Post Spike (PS)
1203909680	Method Blank (MB)**ICP-MS**
1203909681	Laboratory Control Sample (LCS)
1203909684	436735001(B38W38L) Serial Dilution (SD)
1203909682	436735001(B38W38D) Sample Duplicate (DUP)

1203909683	436735001(B38W38S) Matrix Spike (MS)
1203913571	Method Blank (MB)**CVAA**
1203913572	Laboratory Control Sample (LCS)
1203913578	436735001(B38W38L) Serial Dilution (SD)
1203913576	436735001(B38W38D) Sample Duplicate (DUP)
1203913577	436735001(B38W38S) Matrix Spike (MS)

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

CRDL/PQL Requirements
The PQL standard recoveries for SW846 6010C or 6010D met the control limits with the exception of zinc. Client sample concentrations were less than the MDL or greater than two times the PQL; therefore the data were not adversely affected. 436735001 (B38W38), 436735002 (B38W39), 436735003 (B38W40), 436735004 (B38W41), 436735005 (B38W42), 436735006 (B38W43), 436735007 (B38W44), 436735008 (B38W45), 436735009 (B38W46) and 436735010 (B38W47)-ICP.

ICSA/ICSAB Statement
For the ICP-MS analysis, the ICSA solution contains analyte concentrations which are verified trace impurities indigenous to the purchased standard.

Quality Control (QC) Information

Method Blank (MB) Statement
The method blanks (MB) analyzed with this SDG met the acceptance criteria. However, where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data.

Sample	Analyte	Value
1203909672 (MB)	Nickel	158 between (136 - 227)

Matrix Spike (MS/MSD) Recovery Statement
The percent recoveries (%R) obtained from the MS/MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analyte. The post spike recovery was within the required control limits. This verifies the absence of a matrix interference in the post-spike digested sample. The recovery may be attributed to possible sample matrix interference and/or non-homogeneity.

Sample	Analyte	Value
1203909675 (B38W38MS)	Antimony	74.1* (75%-125%)

Technical Information

Preparation/Analytical Method Verification
Method SW-846 3050B is not a total digestion technique for most samples. It is a very strong acid digestion that

will dissolve almost all elements that could become environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

Sample Dilutions

Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range. Samples were diluted for titanium in order to bring raw values within the linear range of the instrument, and for the analytes interfered with, in order to ensure that the inter-element correction factors were valid. 436735001 (B38W38), 436735002 (B38W39), 436735003 (B38W40), 436735004 (B38W41), 436735005 (B38W42), 436735006 (B38W43), 436735007 (B38W44), 436735008 (B38W45) and 436735009 (B38W46)-ICP. The ICPMS solid samples in this SDG were diluted the standard two times. ICP-MS. Sample 436735009 (B38W46)-CVAA was diluted to ensure that the analyte concentration was within the linear calibration range of the instrument.

Analyte	436735									
	001	**002**	**003**	**004**	**005**	**006**	**007**	**008**	**009**	**010**
Several	5X 2X 1X	5X 2X 1X	5X 2X 1X	5X 2X 1X	5X 2X 1X	5X 2X 1X	5X 2X 1X	5X 2X 1X	5X 20X 2X 1X	2X 1X

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: GEL436735 GEL Work Order: 436735

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).

C Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.

D Results are reported from a diluted aliquot of sample.

N Spike Sample recovery is outside control limits.

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

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: Nik-Cole A. Elmore **Name: Nik-Cole Elmore**

Date: 15 NOV 2017 **Title: Data Validator**

Sample Data Summary

GEL Laboratories LLC

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL436735 **CONTRACT:** CPRC0F17002 **METHOD TYPE:** SW846

SAMPLE ID: 436735001 **BASIS:** Dry Weight **DATE COLLECTED** 30−OCT−17

CLIENT ID: B38W38 **LEVEL:** Low **DATE RECEIVED** 01−NOV−17

MATRIX: SOIL **%SOLIDS:** 92.1

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−36−0	Antimony	1710	ug/kg	UDN	1710	5170	5170	5	P	HSC	11/13/17 19:05	111317−2	1714818
7440−38−2	Arsenic	2570	ug/kg	B	517	3100	3100	1	P	HSC	11/07/17 17:43	110717−1	1714818
7440−39−3	Barium	67800	ug/kg	D	107	428	428	2	MS	PRB	11/02/17 23:35	171102−4	1714821
7440−41−7	Beryllium	1030	ug/kg		103	517	517	1	P	HSC	11/07/17 17:43	110717−1	1714818
7440−42−8	Boron	1030	ug/kg	U	1030	5170	5170	1	P	HSC	11/07/17 17:43	110717−1	1714818
7440−43−9	Cadmium	95.1	ug/kg	BD	21.4	214	214	2	MS	PRB	11/02/17 23:35	171102−4	1714821
7440−47−3	Chromium	9890	ug/kg	D	214	643	643	2	MS	PRB	11/02/17 23:35	171102−4	1714821
7440−48−4	Cobalt	10800	ug/kg	D	776	2590	2590	5	P	HSC	11/13/17 19:05	111317−2	1714818
7440−50−8	Copper	16600	ug/kg		310	1030	1030	1	P	HSC	11/07/17 17:43	110717−1	1714818
7439−92−1	Lead	824	ug/kg	B	341	1030	1030	1	P	HSC	11/07/17 17:43	110717−1	1714818
7439−96−5	Manganese	318000	ug/kg		207	1030	1030	1	P	HSC	11/07/17 17:43	110717−1	1714818
7439−97−6	Mercury	11.1	ug/kg	B	4.05	12.1	12.1	1	AV	MTM1	11/08/17 11:32	110817S1−6	1716417
7439−98−7	Molybdenum	347	ug/kg	B	207	1030	1030	1	P	HSC	11/07/17 17:43	110717−1	1714818
7440−02−0	Nickel	9300	ug/kg		155	517	517	1	P	HSC	11/07/17 17:43	110717−1	1714818
7782−49−2	Selenium	1830	ug/kg	D	386	1070	1070	2	MS	PRB	11/02/17 23:35	171102−4	1714821
7440−22−4	Silver	103	ug/kg	U	103	517	517	1	P	HSC	11/07/17 17:43	110717−1	1714818
7440−62−2	Vanadium	67900	ug/kg	D	517	2590	2590	5	P	HSC	11/13/17 19:05	111317−2	1714818
7440−66−6	Zinc	43400	ug/kg	D	2070	5170	5170	5	P	HSC	11/14/17 15:56	111417−3	1714818

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1714818	1714817	SW846 3050B	0.525	g	50	mL	11/01/17	JXM8
1714821	1714820	SW846 3050B	0.507	g	50	mL	11/01/17	JXM8
1716417	1716416	SW846 7471B Prep	0.539	g	30	mL	11/07/17	AXS5

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010D**
MS **SW846 3050B/6020B**

GEL Laboratories LLC

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL436735 **CONTRACT:** CPRC0F17002 **METHOD TYPE:** SW846

SAMPLE ID: 436735002 **BASIS:** Dry Weight **DATE COLLECTED** 30−OCT−17

CLIENT ID: B38W39 **LEVEL:** Low **DATE RECEIVED** 01−NOV−17

MATRIX: SOIL **%SOLIDS:** 93.8

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−36−0	Antimony	1710	ug/kg	UDN	1710	5200	5200	5	P	HSC	11/13/17 19:27	111317−2	1714818
7440−38−2	Arsenic	2530	ug/kg	B	520	3120	3120	1	P	HSC	11/07/17 17:57	110717−1	1714818
7440−39−3	Barium	71900	ug/kg	D	102	406	406	2	MS	PRB	11/02/17 23:57	171102−4	1714821
7440−41−7	Beryllium	1100	ug/kg		104	520	520	1	P	HSC	11/07/17 17:57	110717−1	1714818
7440−42−8	Boron	1040	ug/kg	U	1040	5200	5200	1	P	HSC	11/07/17 17:57	110717−1	1714818
7440−43−9	Cadmium	80.8	ug/kg	BD	20.3	203	203	2	MS	PRB	11/02/17 23:57	171102−4	1714821
7440−47−3	Chromium	9260	ug/kg	D	203	609	609	2	MS	PRB	11/02/17 23:57	171102−4	1714821
7440−48−4	Cobalt	11700	ug/kg	D	779	2600	2600	5	P	HSC	11/13/17 19:27	111317−2	1714818
7440−50−8	Copper	14800	ug/kg		312	1040	1040	1	P	HSC	11/07/17 17:57	110717−1	1714818
7439−92−1	Lead	343	ug/kg	U	343	1040	1040	1	P	HSC	11/07/17 17:57	110717−1	1714818
7439−96−5	Manganese	301000	ug/kg		208	1040	1040	1	P	HSC	11/07/17 17:57	110717−1	1714818
7439−97−6	Mercury	7.33	ug/kg	B	4.06	12.1	12.1	1	AV	MTM1	11/08/17 11:40	110817S1−6	1716417
7439−98−7	Molybdenum	322	ug/kg	B	208	1040	1040	1	P	HSC	11/07/17 17:57	110717−1	1714818
7440−02−0	Nickel	9130	ug/kg		156	520	520	1	P	HSC	11/07/17 17:57	110717−1	1714818
7782−49−2	Selenium	2140	ug/kg	D	366	1020	1020	2	MS	PRB	11/02/17 23:57	171102−4	1714821
7440−22−4	Silver	104	ug/kg	U	104	520	520	1	P	HSC	11/07/17 17:57	110717−1	1714818
7440−62−2	Vanadium	75000	ug/kg	D	520	2600	2600	5	P	HSC	11/13/17 19:27	111317−2	1714818
7440−66−6	Zinc	42500	ug/kg	D	2080	5200	5200	5	P	HSC	11/14/17 16:08	111417−3	1714818

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1714818	1714817	SW846 3050B	0.513	g	50	mL	11/01/17	JXM8
1714821	1714820	SW846 3050B	0.525	g	50	mL	11/01/17	JXM8
1716417	1716416	SW846 7471B Prep	0.528	g	30	mL	11/07/17	AXS5

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010D**
MS **SW846 3050B/6020B**

GEL Laboratories LLC

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL436735 **CONTRACT:** CPRC0F17002 **METHOD TYPE:** SW846

SAMPLE ID: 436735003 **BASIS:** Dry Weight **DATE COLLECTED** 30−OCT−17

CLIENT ID: B38W40 **LEVEL:** Low **DATE RECEIVED** 01−NOV−17

MATRIX: SOIL **%SOLIDS:** 79

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−36−0	Antimony	1980	ug/kg	UDN	1980	5990	5990	5	P	HSC	11/13/17 19:30	111317−2	1714818
7440−38−2	Arsenic	5790	ug/kg		599	3600	3600	1	P	HSC	11/07/17 18:00	110717−1	1714818
7440−39−3	Barium	93700	ug/kg	D	116	463	463	2	MS	PRB	11/03/17 00:00	171102−4	1714821
7440−41−7	Beryllium	1430	ug/kg		120	599	599	1	P	HSC	11/07/17 18:00	110717−1	1714818
7440−42−8	Boron	1200	ug/kg	U	1200	5990	5990	1	P	HSC	11/07/17 18:00	110717−1	1714818
7440−43−9	Cadmium	111	ug/kg	BD	23.1	231	231	2	MS	PRB	11/03/17 00:00	171102−4	1714821
7440−47−3	Chromium	11000	ug/kg	D	231	694	694	2	MS	PRB	11/03/17 00:00	171102−4	1714821
7440−48−4	Cobalt	13700	ug/kg	D	899	3000	3000	5	P	HSC	11/13/17 19:30	111317−2	1714818
7440−50−8	Copper	23300	ug/kg		360	1200	1200	1	P	HSC	11/07/17 18:00	110717−1	1714818
7439−92−1	Lead	955	ug/kg	B	396	1200	1200	1	P	HSC	11/07/17 18:00	110717−1	1714818
7439−96−5	Manganese	384000	ug/kg		240	1200	1200	1	P	HSC	11/07/17 18:00	110717−1	1714818
7439−97−6	Mercury	13.7	ug/kg	B	4.66	13.9	13.9	1	AV	MTM1	11/08/17 11:45	110817S1−6	1716417
7439−98−7	Molybdenum	445	ug/kg	B	240	1200	1200	1	P	HSC	11/07/17 18:00	110717−1	1714818
7440−02−0	Nickel	11200	ug/kg		180	599	599	1	P	HSC	11/07/17 18:00	110717−1	1714818
7782−49−2	Selenium	2740	ug/kg	D	416	1160	1160	2	MS	PRB	11/03/17 00:00	171102−4	1714821
7440−22−4	Silver	120	ug/kg	U	120	599	599	1	P	HSC	11/07/17 18:00	110717−1	1714818
7440−62−2	Vanadium	95800	ug/kg	D	599	3000	3000	5	P	HSC	11/13/17 19:30	111317−2	1714818
7440−66−6	Zinc	58800	ug/kg	D	2400	5990	5990	5	P	HSC	11/14/17 16:18	111417−3	1714818

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1714818	1714817	SW846 3050B	0.525	g	50	mL	11/01/17	JXM8
1714821	1714820	SW846 3050B	0.544	g	50	mL	11/01/17	JXM8
1716417	1716416	SW846 7471B Prep	0.543	g	30	mL	11/07/17	AXS5

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010D**
MS **SW846 3050B/6020B**

GEL Laboratories LLC

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL436735 **CONTRACT:** CPRC0F17002 **METHOD TYPE:** SW846

SAMPLE ID: 436735004 **BASIS:** Dry Weight **DATE COLLECTED** 30−OCT−17

CLIENT ID: B38W41 **LEVEL:** Low **DATE RECEIVED** 01−NOV−17

MATRIX: SOIL **%SOLIDS:** 94.7

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−36−0	Antimony	1600	ug/kg	UDN	1600	4860	4860	5	P	HSC	11/13/17 19:34	111317−2	1714818
7440−38−2	Arsenic	3560	ug/kg		486	2920	2920	1	P	HSC	11/07/17 18:10	110717−1	1714818
7440−39−3	Barium	68700	ug/kg	D	96	384	384	2	MS	PRB	11/03/17 00:04	171102−4	1714821
7440−41−7	Beryllium	1290	ug/kg		97.3	486	486	1	P	HSC	11/07/17 18:10	110717−1	1714818
7440−42−8	Boron	973	ug/kg	U	973	4860	4860	1	P	HSC	11/07/17 18:10	110717−1	1714818
7440−43−9	Cadmium	68.8	ug/kg	BD	19.2	192	192	2	MS	PRB	11/03/17 00:04	171102−4	1714821
7440−47−3	Chromium	7390	ug/kg	D	192	576	576	2	MS	PRB	11/03/17 00:04	171102−4	1714821
7440−48−4	Cobalt	12100	ug/kg	D	730	2430	2430	5	P	HSC	11/13/17 19:34	111317−2	1714818
7440−50−8	Copper	18400	ug/kg		292	973	973	1	P	HSC	11/07/17 18:10	110717−1	1714818
7439−92−1	Lead	343	ug/kg	B	321	973	973	1	P	HSC	11/07/17 18:10	110717−1	1714818
7439−96−5	Manganese	347000	ug/kg		195	973	973	1	P	HSC	11/07/17 18:10	110717−1	1714818
7439−97−6	Mercury	10.5	ug/kg	B	3.78	11.3	11.3	1	AV	MTM1	11/08/17 11:47	110817S1−6	1716417
7439−98−7	Molybdenum	408	ug/kg	B	195	973	973	1	P	HSC	11/07/17 18:10	110717−1	1714818
7440−02−0	Nickel	9370	ug/kg		146	486	486	1	P	HSC	11/07/17 18:10	110717−1	1714818
7782−49−2	Selenium	2430	ug/kg	D	346	960	960	2	MS	PRB	11/03/17 00:04	171102−4	1714821
7440−22−4	Silver	97.3	ug/kg	U	97.3	486	486	1	P	HSC	11/07/17 18:10	110717−1	1714818
7440−62−2	Vanadium	79300	ug/kg	D	486	2430	2430	5	P	HSC	11/13/17 19:34	111317−2	1714818
7440−66−6	Zinc	45700	ug/kg	D	1950	4860	4860	5	P	HSC	11/14/17 16:21	111417−3	1714818

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1714818	1714817	SW846 3050B	0.543	g	50	mL	11/01/17	JXM8
1714821	1714820	SW846 3050B	0.55	g	50	mL	11/01/17	JXM8
1716417	1716416	SW846 7471B Prep	0.561	g	30	mL	11/07/17	AXS5

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010D**
MS **SW846 3050B/6020B**

GEL Laboratories LLC

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL436735 **CONTRACT:** CPRC0F17002 **METHOD TYPE:** SW846

SAMPLE ID: 436735005 **BASIS:** Dry Weight **DATE COLLECTED** 30−OCT−17

CLIENT ID: B38W42 **LEVEL:** Low **DATE RECEIVED** 01−NOV−17

MATRIX: SOIL **%SOLIDS:** 94.2

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−36−0	Antimony	1640	ug/kg	UDN	1640	4980	4980	5	P	HSC	11/13/17 19:37	111317−2	1714818
7440−38−2	Arsenic	9390	ug/kg		498	2990	2990	1	P	HSC	11/07/17 18:13	110717−1	1714818
7440−39−3	Barium	84400	ug/kg	D	99.8	399	399	2	MS	PRB	11/03/17 00:07	171102−4	1714821
7440−41−7	Beryllium	1250	ug/kg		99.6	498	498	1	P	HSC	11/07/17 18:13	110717−1	1714818
7440−42−8	Boron	996	ug/kg	U	996	4980	4980	1	P	HSC	11/07/17 18:13	110717−1	1714818
7440−43−9	Cadmium	70.8	ug/kg	BD	20	200	200	2	MS	PRB	11/03/17 00:07	171102−4	1714821
7440−47−3	Chromium	5520	ug/kg	D	200	599	599	2	MS	PRB	11/03/17 00:07	171102−4	1714821
7440−48−4	Cobalt	12200	ug/kg	D	747	2490	2490	5	P	HSC	11/13/17 19:37	111317−2	1714818
7440−50−8	Copper	32000	ug/kg		299	996	996	1	P	HSC	11/07/17 18:13	110717−1	1714818
7439−92−1	Lead	329	ug/kg	U	329	996	996	1	P	HSC	11/07/17 18:13	110717−1	1714818
7439−96−5	Manganese	304000	ug/kg		199	996	996	1	P	HSC	11/07/17 18:13	110717−1	1714818
7439−97−6	Mercury	8.49	ug/kg	B	4.03	12	12	1	AV	MTM1	11/08/17 11:49	110817S1−6	1716417
7439−98−7	Molybdenum	511	ug/kg	B	199	996	996	1	P	HSC	11/07/17 18:13	110717−1	1714818
7440−02−0	Nickel	8040	ug/kg		149	498	498	1	P	HSC	11/07/17 18:13	110717−1	1714818
7782−49−2	Selenium	2790	ug/kg	D	359	998	998	2	MS	PRB	11/03/17 00:07	171102−4	1714821
7440−22−4	Silver	99.6	ug/kg	U	99.6	498	498	1	P	HSC	11/07/17 18:13	110717−1	1714818
7440−62−2	Vanadium	88200	ug/kg	D	498	2490	2490	5	P	HSC	11/13/17 19:37	111317−2	1714818
7440−66−6	Zinc	56900	ug/kg	D	1990	4980	4980	5	P	HSC	11/14/17 16:24	111417−3	1714818

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1714818	1714817	SW846 3050B	0.533	g	50	mL	11/01/17	JXM8
1714821	1714820	SW846 3050B	0.532	g	50	mL	11/01/17	JXM8
1716417	1716416	SW846 7471B Prep	0.529	g	30	mL	11/07/17	AXS5

***Analytical Methods:**

AV	**SW846 7471B**
P	**SW846 3050B/6010D**
MS	**SW846 3050B/6020B**

GEL Laboratories LLC

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL436735 **CONTRACT:** CPRC0F17002 **METHOD TYPE:** SW846

SAMPLE ID: 436735006 **BASIS:** Dry Weight **DATE COLLECTED** 30−OCT−17

CLIENT ID: B38W43 **LEVEL:** Low **DATE RECEIVED** 01−NOV−17

MATRIX: SOIL **%SOLIDS:** 93.3

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−36−0	Antimony	1750	ug/kg	UDN	1750	5300	5300	5	P	HSC	11/13/17 19:40	111317−2	1714818
7440−38−2	Arsenic	2470	ug/kg	B	530	3180	3180	1	P	HSC	11/07/17 18:17	110717−1	1714818
7440−39−3	Barium	72900	ug/kg	D	104	417	417	2	MS	PRB	11/03/17 00:10	171102−4	1714821
7440−41−7	Beryllium	1160	ug/kg		106	530	530	1	P	HSC	11/07/17 18:17	110717−1	1714818
7440−42−8	Boron	1060	ug/kg	U	1060	5300	5300	1	P	HSC	11/07/17 18:17	110717−1	1714818
7440−43−9	Cadmium	72.4	ug/kg	BD	20.9	209	209	2	MS	PRB	11/03/17 00:10	171102−4	1714821
7440−47−3	Chromium	8140	ug/kg	D	209	626	626	2	MS	PRB	11/03/17 00:10	171102−4	1714821
7440−48−4	Cobalt	11900	ug/kg	D	795	2650	2650	5	P	HSC	11/13/17 19:40	111317−2	1714818
7440−50−8	Copper	17100	ug/kg		318	1060	1060	1	P	HSC	11/07/17 18:17	110717−1	1714818
7439−92−1	Lead	350	ug/kg	U	350	1060	1060	1	P	HSC	11/07/17 18:17	110717−1	1714818
7439−96−5	Manganese	322000	ug/kg		212	1060	1060	1	P	HSC	11/07/17 18:17	110717−1	1714818
7439−97−6	Mercury	12.3	ug/kg		4.14	12.3	12.3	1	AV	MTM1	11/08/17 11:50	110817S1−6	1716417
7439−98−7	Molybdenum	469	ug/kg	B	212	1060	1060	1	P	HSC	11/07/17 18:17	110717−1	1714818
7440−02−0	Nickel	8890	ug/kg		159	530	530	1	P	HSC	11/07/17 18:17	110717−1	1714818
7782−49−2	Selenium	2460	ug/kg	D	375	1040	1040	2	MS	PRB	11/03/17 00:10	171102−4	1714821
7440−22−4	Silver	106	ug/kg	U	106	530	530	1	P	HSC	11/07/17 18:17	110717−1	1714818
7440−62−2	Vanadium	78000	ug/kg	D	530	2650	2650	5	P	HSC	11/13/17 19:40	111317−2	1714818
7440−66−6	Zinc	41700	ug/kg	D	2120	5300	5300	5	P	HSC	11/14/17 16:28	111417−3	1714818

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1714818	1714817	SW846 3050B	0.506	g	50	mL	11/01/17	JXM8
1714821	1714820	SW846 3050B	0.514	g	50	mL	11/01/17	JXM8
1716417	1716416	SW846 7471B Prep	0.521	g	30	mL	11/07/17	AXS5

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010D**
MS **SW846 3050B/6020B**

GEL Laboratories LLC

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL436735 **CONTRACT:** CPRC0F17002 **METHOD TYPE:** SW846

SAMPLE ID: 436735007 **BASIS:** Dry Weight **DATE COLLECTED** 30−OCT−17

CLIENT ID: B38W44 **LEVEL:** Low **DATE RECEIVED** 01−NOV−17

MATRIX: SOIL **%SOLIDS:** 94.9

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−36−0	Antimony	1670	ug/kg	UDN	1670	5070	5070	5	P	HSC	11/13/17 19:43	111317−2	1714818
7440−38−2	Arsenic	2350	ug/kg	B	507	3040	3040	1	P	HSC	11/07/17 18:20	110717−1	1714818
7440−39−3	Barium	66400	ug/kg	D	97.2	389	389	2	MS	PRB	11/03/17 00:13	171102−4	1714821
7440−41−7	Beryllium	1320	ug/kg		101	507	507	1	P	HSC	11/07/17 18:20	110717−1	1714818
7440−42−8	Boron	1010	ug/kg	U	1010	5070	5070	1	P	HSC	11/07/17 18:20	110717−1	1714818
7440−43−9	Cadmium	77.2	ug/kg	BD	19.4	194	194	2	MS	PRB	11/03/17 00:13	171102−4	1714821
7440−47−3	Chromium	6270	ug/kg	D	194	583	583	2	MS	PRB	11/03/17 00:13	171102−4	1714821
7440−48−4	Cobalt	12100	ug/kg	D	760	2530	2530	5	P	HSC	11/13/17 19:43	111317−2	1714818
7440−50−8	Copper	16900	ug/kg		304	1010	1010	1	P	HSC	11/07/17 18:20	110717−1	1714818
7439−92−1	Lead	334	ug/kg	U	334	1010	1010	1	P	HSC	11/07/17 18:20	110717−1	1714818
7439−96−5	Manganese	332000	ug/kg		203	1010	1010	1	P	HSC	11/07/17 18:20	110717−1	1714818
7439−97−6	Mercury	7.96	ug/kg	B	3.7	11.1	11.1	1	AV	MTM1	11/08/17 11:52	110817S1−6	1716417
7439−98−7	Molybdenum	417	ug/kg	B	203	1010	1010	1	P	HSC	11/07/17 18:20	110717−1	1714818
7440−02−0	Nickel	8740	ug/kg		152	507	507	1	P	HSC	11/07/17 18:20	110717−1	1714818
7782−49−2	Selenium	2340	ug/kg	D	350	972	972	2	MS	PRB	11/03/17 00:13	171102−4	1714821
7440−22−4	Silver	101	ug/kg	U	101	507	507	1	P	HSC	11/07/17 18:20	110717−1	1714818
7440−62−2	Vanadium	84600	ug/kg	D	507	2530	2530	5	P	HSC	11/13/17 19:43	111317−2	1714818
7440−66−6	Zinc	43800	ug/kg	D	2030	5070	5070	5	P	HSC	11/14/17 16:31	111417−3	1714818

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1714818	1714817	SW846 3050B	0.52	g	50	mL	11/01/17	JXM8
1714821	1714820	SW846 3050B	0.542	g	50	mL	11/01/17	JXM8
1716417	1716416	SW846 7471B Prep	0.572	g	30	mL	11/07/17	AXS5

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010D**
MS **SW846 3050B/6020B**

GEL Laboratories LLC

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL436735 **CONTRACT:** CPRC0F17002 **METHOD TYPE:** SW846

SAMPLE ID: 436735008 **BASIS:** Dry Weight **DATE COLLECTED** 30−OCT−17

CLIENT ID: B38W45 **LEVEL:** Low **DATE RECEIVED** 01−NOV−17

MATRIX: SOIL **%SOLIDS:** 94.9

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−36−0	Antimony	1660	ug/kg	UDN	1660	5030	5030	5	P	HSC	11/13/17 19:47	111317−2	1714818
7440−38−2	Arsenic	5220	ug/kg		503	3020	3020	1	P	HSC	11/07/17 18:24	110717−1	1714818
7440−39−3	Barium	74100	ug/kg	D	96.8	387	387	2	MS	PRB	11/03/17 00:16	171102−4	1714821
7440−41−7	Beryllium	1380	ug/kg		101	503	503	1	P	HSC	11/07/17 18:24	110717−1	1714818
7440−42−8	Boron	1010	ug/kg	U	1010	5030	5030	1	P	HSC	11/07/17 18:24	110717−1	1714818
7440−43−9	Cadmium	62.2	ug/kg	BD	19.4	194	194	2	MS	PRB	11/03/17 00:16	171102−4	1714821
7440−47−3	Chromium	7300	ug/kg	D	194	581	581	2	MS	PRB	11/03/17 00:16	171102−4	1714821
7440−48−4	Cobalt	15600	ug/kg	D	754	2510	2510	5	P	HSC	11/13/17 19:47	111317−2	1714818
7440−50−8	Copper	24100	ug/kg		302	1010	1010	1	P	HSC	11/07/17 18:24	110717−1	1714818
7439−92−1	Lead	332	ug/kg	U	332	1010	1010	1	P	HSC	11/07/17 18:24	110717−1	1714818
7439−96−5	Manganese	544000	ug/kg		201	1010	1010	1	P	HSC	11/07/17 18:24	110717−1	1714818
7439−97−6	Mercury	26.7	ug/kg		4.01	12	12	1	AV	MTM1	11/08/17 11:54	110817S1−6	1716417
7439−98−7	Molybdenum	445	ug/kg	B	201	1010	1010	1	P	HSC	11/07/17 18:24	110717−1	1714818
7440−02−0	Nickel	12100	ug/kg		151	503	503	1	P	HSC	11/07/17 18:24	110717−1	1714818
7782−49−2	Selenium	2760	ug/kg	D	349	968	968	2	MS	PRB	11/03/17 00:16	171102−4	1714821
7440−22−4	Silver	101	ug/kg	U	101	503	503	1	P	HSC	11/07/17 18:24	110717−1	1714818
7440−62−2	Vanadium	98100	ug/kg	D	503	2510	2510	5	P	HSC	11/13/17 19:47	111317−2	1714818
7440−66−6	Zinc	54400	ug/kg	D	2010	5030	5030	5	P	HSC	11/14/17 16:34	111417−3	1714818

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1714818	1714817	SW846 3050B	0.524	g	50	mL	11/01/17	JXM8
1714821	1714820	SW846 3050B	0.544	g	50	mL	11/01/17	JXM8
1716417	1716416	SW846 7471B Prep	0.528	g	30	mL	11/07/17	AXS5

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010D**
MS **SW846 3050B/6020B**

GEL Laboratories LLC

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL436735 **CONTRACT:** CPRC0F17002 **METHOD TYPE:** SW846

SAMPLE ID: 436735009 **BASIS:** Dry Weight **DATE COLLECTED** 30−OCT−17

CLIENT ID: B38W46 **LEVEL:** Low **DATE RECEIVED** 01−NOV−17

MATRIX: SOIL **%SOLIDS:** 93.9

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−36−0	Antimony	1640	ug/kg	UDN	1640	4980	4980	5	P	HSC	11/13/17 19:50	111317−2	1714818
7440−38−2	Arsenic	2230	ug/kg	B	498	2990	2990	1	P	HSC	11/07/17 18:27	110717−1	1714818
7440−39−3	Barium	68100	ug/kg	D	102	407	407	2	MS	PRB	11/03/17 00:20	171102−4	1714821
7440−41−7	Beryllium	1100	ug/kg		99.5	498	498	1	P	HSC	11/07/17 18:27	110717−1	1714818
7440−42−8	Boron	995	ug/kg	U	995	4980	4980	1	P	HSC	11/07/17 18:27	110717−1	1714818
7440−43−9	Cadmium	67.5	ug/kg	BD	20.3	203	203	2	MS	PRB	11/03/17 00:20	171102−4	1714821
7440−47−3	Chromium	9560	ug/kg	D	203	610	610	2	MS	PRB	11/03/17 00:20	171102−4	1714821
7440−48−4	Cobalt	11700	ug/kg	D	747	2490	2490	5	P	HSC	11/13/17 19:50	111317−2	1714818
7440−50−8	Copper	15700	ug/kg		299	995	995	1	P	HSC	11/07/17 18:27	110717−1	1714818
7439−92−1	Lead	328	ug/kg	U	328	995	995	1	P	HSC	11/07/17 18:27	110717−1	1714818
7439−96−5	Manganese	334000	ug/kg		199	995	995	1	P	HSC	11/07/17 18:27	110717−1	1714818
7439−97−6	Mercury	1260	ug/kg	D	85.3	255	255	20	AV	MTM1	11/08/17 16:31	110817S1−7	1716417
7439−98−7	Molybdenum	309	ug/kg	B	199	995	995	1	P	HSC	11/07/17 18:27	110717−1	1714818
7440−02−0	Nickel	9390	ug/kg		149	498	498	1	P	HSC	11/07/17 18:27	110717−1	1714818
7782−49−2	Selenium	2050	ug/kg	D	366	1020	1020	2	MS	PRB	11/03/17 00:20	171102−4	1714821
7440−22−4	Silver	99.5	ug/kg	U	99.5	498	498	1	P	HSC	11/07/17 18:27	110717−1	1714818
7440−62−2	Vanadium	77400	ug/kg	D	498	2490	2490	5	P	HSC	11/13/17 19:50	111317−2	1714818
7440−66−6	Zinc	41100	ug/kg	D	1990	4980	4980	5	P	HSC	11/14/17 16:37	111417−3	1714818

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1714818	1714817	SW846 3050B	0.535	g	50	mL	11/01/17	JXM8
1714821	1714820	SW846 3050B	0.524	g	50	mL	11/01/17	JXM8
1716417	1716416	SW846 7471B Prep	0.502	g	30	mL	11/07/17	AXS5

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010D**
MS **SW846 3050B/6020B**

GEL Laboratories LLC

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL436735 **CONTRACT:** CPRC0F17002 **METHOD TYPE:** SW846

SAMPLE ID: 436735010 **BASIS:** Dry Weight **DATE COLLECTED** 30−OCT−17

CLIENT ID: B38W47 **LEVEL:** Low **DATE RECEIVED** 01−NOV−17

MATRIX: SOIL **%SOLIDS:** 99.971

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−36−0	Antimony	312	ug/kg	UN	312	945	945	1	P	HSC	11/13/17 19:53	111317−2	1714818
7440−38−2	Arsenic	473	ug/kg	U	473	2840	2840	1	P	HSC	11/07/17 18:31	110717−1	1714818
7440−39−3	Barium	452	ug/kg	D	94.2	377	377	2	MS	PRB	11/03/17 13:15	171103−5	1714821
7440−41−7	Beryllium	94.5	ug/kg	U	94.5	473	473	1	P	HSC	11/07/17 18:31	110717−1	1714818
7440−42−8	Boron	945	ug/kg	U	945	4730	4730	1	P	HSC	11/07/17 18:31	110717−1	1714818
7440−43−9	Cadmium	18.8	ug/kg	UD	18.8	188	188	2	MS	PRB	11/03/17 13:15	171103−5	1714821
7440−47−3	Chromium	382	ug/kg	BD	188	565	565	2	MS	PRB	11/03/17 13:15	171103−5	1714821
7440−48−4	Cobalt	142	ug/kg	U	142	473	473	1	P	HSC	11/13/17 19:53	111317−2	1714818
7440−50−8	Copper	284	ug/kg	U	284	945	945	1	P	HSC	11/07/17 18:31	110717−1	1714818
7439−92−1	Lead	312	ug/kg	U	312	945	945	1	P	HSC	11/07/17 18:31	110717−1	1714818
7439−96−5	Manganese	1280	ug/kg		189	945	945	1	P	HSC	11/07/17 18:31	110717−1	1714818
7439−97−6	Mercury	23	ug/kg		3.51	10.5	10.5	1	AV	MTM1	11/08/17 11:58	110817S1−6	1716417
7439−98−7	Molybdenum	189	ug/kg	U	189	945	945	1	P	HSC	11/07/17 18:31	110717−1	1714818
7440−02−0	Nickel	285	ug/kg	CB	142	473	473	1	P	HSC	11/07/17 18:31	110717−1	1714818
7782−49−2	Selenium	339	ug/kg	UD	339	942	942	2	MS	PRB	11/03/17 13:15	171103−5	1714821
7440−22−4	Silver	94.5	ug/kg	U	94.5	473	473	1	P	HSC	11/07/17 18:31	110717−1	1714818
7440−62−2	Vanadium	345	ug/kg	B	94.5	473	473	1	P	HSC	11/13/17 19:53	111317−2	1714818
7440−66−6	Zinc	378	ug/kg	U	378	945	945	1	P	HSC	11/14/17 16:41	111417−3	1714818

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1714818	1714817	SW846 3050B	0.529	g	50	mL	11/01/17	JXM8
1714821	1714820	SW846 3050B	0.531	g	50	mL	11/01/17	JXM8
1716417	1716416	SW846 7471B Prep	0.573	g	30	mL	11/07/17	AXS5

***Analytical Methods:**

AV	**SW846 7471B**
P	**SW846 3050B/6010D**
MS	**SW846 3050B/6020B**

Quality Control Summary

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

QC Summary

Report Date: November 15, 2017

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **436735**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS										
Batch 1714821										
QC1203909682 436735001 DUP										
Barium	D	67800	D	75400	ug/kg	10.6		(0%-35%)	PRB	11/02/17 23:38
Cadmium	BD	95.1	BD	86.0	ug/kg	10.1 ^		(+/-200)		
Chromium	D	9890	D	9500	ug/kg	3.96		(0%-35%)		
Selenium	D	1830	D	2150	ug/kg	16.2 ^		(+/-1000)		
QC1203909681 LCS										
Barium	4790		D	5340	ug/kg		112	(80%-120%)		11/02/17 23:32
Cadmium	4790		D	4710	ug/kg		98.3	(80%-120%)		
Chromium	4790		D	5210	ug/kg		109	(80%-120%)		
Selenium	4790		D	4110	ug/kg		85.8	(80%-120%)		
QC1203909680 MB										
Barium			DU	93.8	ug/kg					11/02/17 23:28
Cadmium			DU	18.8	ug/kg					
Chromium			DU	188	ug/kg					
Selenium			DU	338	ug/kg					

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QC Summary

Workorder: **436735**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS											
Batch 1714821											
QC1203909683 436735001 MS											
Barium	4980	D	67800	D	76900	ug/kg		N/A	(75%-125%)	PRB	11/02/17 23:41
Cadmium	4980	BD	95.1	D	4300	ug/kg		84.5	(75%-125%)		
Chromium	4980	D	9890	D	14500	ug/kg		92.6	(75%-125%)		
Selenium	4980	D	1830	D	5710	ug/kg		77.8	(75%-125%)		
QC1203909684 436735001 SDILT											
Barium		D	317	D	61.3	ug/L	3.18		(0%-10%)		11/02/17 23:48
Cadmium		BD	0.444	BD	0.105	ug/L	18.2		(0%-10%)		
Chromium		D	46.2	D	9.43	ug/L	2.12		(0%-10%)		
Selenium		D	8.55	DU	1930	ug/L	N/A		(0%-10%)		
Metals Analysis-ICP											
Batch 1714818											
QC1203909674 436735001 DUP											
Antimony		DNU	1710	DU	1640	ug/kg	N/A			HSC	11/13/17 19:08
Arsenic		B	2570	B	2520	ug/kg	2.06 ^		(+/-2990)		11/07/17 17:46
Beryllium			1030		978	ug/kg	5.41 ^		(+/-498)		
Boron		B	-1830	B	-1120	ug/kg	48.2 ^		(+/-4980)		
Cobalt		D	10800	D	9790	ug/kg	9.53 ^		(+/-2490)		11/13/17 19:08
Copper			16600		15700	ug/kg	5.22		(0%-35%)		11/07/17 17:46

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QC Summary

Workorder: **436735**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP										
Batch 1714818										
Lead		B 824	B	879	ug/kg	6.49 ^		(+/-996)	HSC	11/07/17 17:46
Manganese		318000		300000	ug/kg	5.82		(0%-35%)		
Molybdenum		B 347	B	365	ug/kg	5.03 ^		(+/-996)		
Nickel		9300		9360	ug/kg	0.663		(0%-35%)		
Silver		B -142	B	-118	ug/kg	18 ^		(+/-498)		
Vanadium		D 67900	D	62300	ug/kg	8.65		(0%-35%)		11/13/17 19:08
Zinc		D 43400	D	43700	ug/kg	0.803		(0%-35%)		11/14/17 15:59
QC1203909673 LCS										
Antimony	47800			45200	ug/kg		94.7	(80%-120%)		11/13/17 18:58
Arsenic	47800			45100	ug/kg		94.4	(80%-120%)		11/07/17 17:40
Beryllium	47800			46300	ug/kg		96.8	(80%-120%)		
Boron	47800			47200	ug/kg		98.7	(80%-120%)		
Cobalt	47800			48300	ug/kg		101	(80%-120%)		11/13/17 18:58
Copper	47800			43700	ug/kg		91.5	(80%-120%)		11/07/17 17:40
Lead	47800			46400	ug/kg		97	(80%-120%)		
Manganese	47800			44400	ug/kg		92.9	(80%-120%)		

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QC Summary

Workorder: **436735**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP										
Batch 1714818										
Molybdenum	47800			43500	ug/kg		90.9	(80%-120%)	HSC	11/07/17 17:40
Nickel	47800			41900	ug/kg		87.7	(80%-120%)		
Silver	47800			44400	ug/kg		92.8	(80%-120%)		
Vanadium	47800			45300	ug/kg		94.8	(80%-120%)		11/13/17 18:58
Zinc	47800			44000	ug/kg		92.1	(80%-120%)		11/14/17 15:52
QC1203909672 MB										
Antimony			U	300	ug/kg					11/13/17 18:55
Arsenic			U	455	ug/kg					11/07/17 17:37
Beryllium			U	90.9	ug/kg					
Boron			U	909	ug/kg					
Cobalt			U	136	ug/kg					11/13/17 18:55
Copper			U	273	ug/kg					11/07/17 17:37
Lead			U	300	ug/kg					
Manganese			U	182	ug/kg					
Molybdenum			U	182	ug/kg					
Nickel			B	158	ug/kg					

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QC Summary

Workorder: **436735**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP											
Batch 1714818											
Silver				U	90.9	ug/kg				HSC	11/07/17 17:37
Vanadium				U	90.9	ug/kg					11/13/17 18:55
Zinc				U	364	ug/kg					11/14/17 15:49
QC1203909675 436735001 MS											
Antimony	51800	DNU	1710	DN	38400	ug/kg		74.1*	(75%-125%)		11/13/17 19:11
Arsenic	51800	B	2570		47700	ug/kg		87.2	(75%-125%)		11/07/17 17:50
Beryllium	51800		1030		46600	ug/kg		87.9	(75%-125%)		
Boron	51800	B	-1830		44900	ug/kg		86.6	(75%-125%)		
Cobalt	51800	D	10800	D	57400	ug/kg		89.9	(75%-125%)		11/13/17 19:11
Copper	51800		16600		66100	ug/kg		95.6	(75%-125%)		11/07/17 17:50
Lead	51800	B	824		46500	ug/kg		88.2	(75%-125%)		
Manganese	51800		318000		367000	ug/kg		N/A	(75%-125%)		
Molybdenum	51800	B	347		45100	ug/kg		86.3	(75%-125%)		
Nickel	51800		9300		53300	ug/kg		84.9	(75%-125%)		
Silver	51800	B	-142		44500	ug/kg		85.9	(75%-125%)		
Vanadium	51800	D	67900	D	112000	ug/kg		84.5	(75%-125%)		11/13/17 19:11

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QC Summary

Workorder: **436735**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP											
Batch 1714818											
Zinc	51800	D	43400	D	93400	ug/kg		96.6	(75%-125%)	HSC	11/14/17 16:02
QC1203918622 436735001 PS											
Antimony	500	DNU	-3.2	D	471	ug/L		94.3	(75%-125%)		11/13/17 19:14
QC1203909676 436735001 SDILT											
Antimony		DNU	-3.2	DU	8530	ug/L	N/A		(0%-10%)		11/13/17 19:18
Arsenic		B	24.8	DU	2590	ug/L	N/A		(0%-10%)		11/07/17 17:53
Beryllium			9.98	BD	2.32	ug/L	16.1		(0%-10%)		
Boron		B	-17.7	DU	5170	ug/L	N/A		(0%-10%)		
Cobalt		D	20.8	BD	4.79	ug/L	14.9		(0%-10%)		11/13/17 19:18
Copper			160	D	30.3	ug/L	5.31		(0%-10%)		11/07/17 17:53
Lead		B	7.96	DU	1710	ug/L	N/A		(0%-10%)		
Manganese			3080	D	664	ug/L	7.79		(0%-10%)		
Molybdenum		B	3.36	DU	1030	ug/L	N/A		(0%-10%)		
Nickel			89.9	D	19.8	ug/L	10.2		(0%-10%)		
Silver		B	-1.37	DU	517	ug/L	N/A		(0%-10%)		
Vanadium		D	131	D	27.3	ug/L	3.84		(0%-10%)		11/13/17 19:18

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QC Summary

Workorder: 436735

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP												
Batch 1714818												
Zinc		D	83.8	D	30.1	ug/L	79.8		(0%-10%)	HSC	11/14/17	16:05
Metals Analysis-Mercury												
Batch 1716417												
QC1203913576 436735001 DUP												
Mercury		B	11.1	B	10.7	ug/kg	3.22 ^		(+/-12.8)	MTM1	11/08/17	11:34
QC1203913572 LCS												
Mercury	109				111	ug/kg		101	(80%-120%)		11/08/17	11:05
QC1203913571 MB												
Mercury				U	3.73	ug/kg					11/08/17	11:00
QC1203913577 436735001 MS												
Mercury	121	B	11.1		134	ug/kg		102	(75%-125%)		11/08/17	11:35
QC1203913578 436735001 SDILT												
Mercury		B	0.183	BD	0.109	ug/L	198		(0%-10%)		11/08/17	11:37

Notes:

The Qualifiers in this report are defined as follows:

- * Duplicate analysis not within control limits
- + Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- C Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.
- D Results are reported from a diluted aliquot of sample.
- E Reported value is estimated due to interferences. See comment in narrative.
- M Duplicate precision not met.
- N Spike Sample recovery is outside control limits.
- S Reported value determined by the Method of Standard Additions (MSA)
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- W Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

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QC Summary

Workorder: **436735**

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

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

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

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

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

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL436735
Work Order #: 436735

Product: **Ion Chromatography**
Analytical Method: 9056_ANIONS_IC
Analytical Procedure: GL-GC-E-086 REV# 25
Analytical Batches: 1715523 and 1715518

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

GEL Sample ID#	Client Sample Identification
436735001	B38W38
436735002	B38W39
436735003	B38W40
436735004	B38W41
436735005	B38W42
436735006	B38W43
436735007	B38W44
436735008	B38W45
436735009	B38W46
436735010	B38W47
1203911267	Method Blank (MB)
1203911268	Laboratory Control Sample (LCS)
1203911269	436735009(B38W46) Sample Duplicate (DUP)
1203911270	436735010(B38W47) Sample Duplicate (DUP)
1203911271	436735009(B38W46) Matrix Spike (MS)
1203911272	436735010(B38W47) Matrix Spike (MS)

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.

Miscellaneous Information

Manual Integrations
Samples 1203911269 (B38W46DUP), 1203911270 (B38W47DUP), 1203911271 (B38W46MS), 1203911272 (B38W47MS), 436735001 (B38W38), 436735004 (B38W41), 436735005 (B38W42), 436735006 (B38W43), 436735007 (B38W44), 436735008 (B38W45) and 436735010 (B38W47) were manually integrated to correctly position the baseline as set in the calibration standards.

Product: **Hexavalent Chromium**
Analytical Method: 7196_CR6
Analytical Procedure: GL-GC-E-044 REV# 22
Analytical Batch: 1715592

Preparation Method: SW846 3060A
Preparation Procedure: GL-GC-E-044 REV# 22
Preparation Batch: 1715590

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

GEL Sample ID#	Client Sample Identification
436735001	B38W38
436735002	B38W39
436735003	B38W40
436735004	B38W41
436735005	B38W42
436735006	B38W43
436735007	B38W44
436735008	B38W45
436735009	B38W46
436735010	B38W47
1203911478	Method Blank (MB)
1203911479	Laboratory Control Sample (LCS)
1203911480	Insoluble Lab Control Sample (ILCS)
1203911481	436735010(B38W47) Sample Duplicate (DUP)
1203911483	436735010(B38W47) Matrix Spike (MS)

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

Data Summary:

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.

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Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL436735 GEL Work Order: 436735

The Qualifiers in this report are defined as follows:

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

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: Aubrey Kingsbury**

Date: 13 NOV 2017 **Title: Analyst I**

Sample Data Summary

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Certificate of Analysis

Report Date: November 13, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-002

Client Sample ID: B38W38
Sample ID: 436735001
Matrix: SOIL
Collect Date: 30-OCT-17 09:45
Receive Date: 01-NOV-17
Collector: Client
Moisture: 7.92%

Project: CPRC0F17002
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON "Dry Weight Corrected"												
Chloride	B	1730	741	2060	ug/Kg	9.48	1	MXL2	11/02/17	2353	1715523	1
Fluoride		1130	350	1030	ug/Kg	9.48	1					
Nitrate-N		1710	340	1030	ug/Kg	9.48	1					
Nitrite-N	U	340	340	1030	ug/Kg	9.48	1					
Sulfate		5130	1370	4120	ug/Kg	9.48	1					
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	U	160	160	399	ug/Kg	36.8	1	VH1	11/10/17	1026	1715592	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	11/09/17	1150	1715590
SW846 9056A	SW846 9056A Total Anions in Soil	MXL2	11/02/17	1453	1715518

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: November 13, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-002

Client Sample ID: B38W39
Sample ID: 436735002
Matrix: SOIL
Collect Date: 30-OCT-17 09:55
Receive Date: 01-NOV-17
Collector: Client
Moisture: 6.22%

Project: CPRC0F17002
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON "Dry Weight Corrected"												
Chloride	B	1670	713	1980	ug/Kg	9.28	1	MXL2	11/03/17	0022	1715523	1
Fluoride	B	917	336	990	ug/Kg	9.28	1					
Nitrate-N		1290	327	990	ug/Kg	9.28	1					
Nitrite-N	U	327	327	990	ug/Kg	9.28	1					
Sulfate		6400	1320	3960	ug/Kg	9.28	1					
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	U	160	160	401	ug/Kg	37.6	1	VH1	11/10/17	1027	1715592	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	11/09/17	1150	1715590
SW846 9056A	SW846 9056A Total Anions in Soil	MXL2	11/02/17	1453	1715518

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: November 13, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-002

Client Sample ID: B38W40
Sample ID: 436735003
Matrix: SOIL
Collect Date: 30-OCT-17 10:07
Receive Date: 01-NOV-17
Collector: Client
Moisture: 20.6%

Project: CPRC0F17002
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON "Dry Weight Corrected"												
Chloride	B	1890	867	2410	ug/Kg	9.57	1	MXL2	11/03/17	0051	1715523	1
Fluoride	B	809	410	1200	ug/Kg	9.57	1					
Nitrate-N	B	1130	397	1200	ug/Kg	9.57	1					
Nitrite-N	U	397	397	1200	ug/Kg	9.57	1					
Sulfate		10500	1600	4820	ug/Kg	9.57	1					
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	U	191	191	476	ug/Kg	37.8	1	VH1	11/10/17	1027	1715592	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	11/09/17	1150	1715590
SW846 9056A	SW846 9056A Total Anions in Soil	MXL2	11/02/17	1453	1715518

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: November 13, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-002

Client Sample ID: B38W41
Sample ID: 436735004
Matrix: SOIL
Collect Date: 30-OCT-17 10:15
Receive Date: 01-NOV-17
Collector: Client
Moisture: 5.33%

Project: CPRC0F17002
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON "Dry Weight Corrected"												
Chloride	B	1490	718	1990	ug/Kg	9.43	1	MXL2	11/03/17	0120	1715523	1
Fluoride	B	646	339	997	ug/Kg	9.43	1					
Nitrate-N	B	540	329	997	ug/Kg	9.43	1					
Nitrite-N	U	329	329	997	ug/Kg	9.43	1					
Sulfate	B	2760	1330	3990	ug/Kg	9.43	1					
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	U	109	109	273	ug/Kg	25.8	1	VH1	11/10/17	1027	1715592	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	11/09/17	1150	1715590
SW846 9056A	SW846 9056A Total Anions in Soil	MXL2	11/02/17	1453	1715518

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: November 13, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-002

Client Sample ID: B38W42
Sample ID: 436735005
Matrix: SOIL
Collect Date: 30-OCT-17 10:25
Receive Date: 01-NOV-17
Collector: Client
Moisture: 5.78%

Project: CPRC0F17002
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON "Dry Weight Corrected"												
Chloride	B	1520	738	2050	ug/Kg	9.66	1	MXL2	11/03/17	0149	1715523	1
Fluoride	B	708	349	1030	ug/Kg	9.66	1					
Nitrate-N	B	559	338	1030	ug/Kg	9.66	1					
Nitrite-N	U	338	338	1030	ug/Kg	9.66	1					
Sulfate	B	3460	1360	4100	ug/Kg	9.66	1					
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	U	118	118	295	ug/Kg	27.8	1	VH1	11/10/17	1028	1715592	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	11/09/17	1150	1715590
SW846 9056A	SW846 9056A Total Anions in Soil	MXL2	11/02/17	1453	1715518

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: November 13, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-002

Client Sample ID: B38W43 Project: CPRC0F17002
Sample ID: 436735006 Client ID: CPRC001
Matrix: SOIL
Collect Date: 30-OCT-17 10:30
Receive Date: 01-NOV-17
Collector: Client
Moisture: 6.74%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON "Dry Weight Corrected"												
Chloride	B	1570	725	2010	ug/Kg	9.39	1	MXL2	11/03/17	0218	1715523	1
Fluoride	B	926	342	1010	ug/Kg	9.39	1					
Nitrate-N	B	586	332	1010	ug/Kg	9.39	1					
Nitrite-N	U	332	332	1010	ug/Kg	9.39	1					
Sulfate		4300	1340	4030	ug/Kg	9.39	1					
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	U	153	153	384	ug/Kg	35.8	1	VH1	11/10/17	1028	1715592	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	11/09/17	1150	1715590
SW846 9056A	SW846 9056A Total Anions in Soil	MXL2	11/02/17	1453	1715518

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: November 13, 2017

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F17-002

Client Sample ID:	B38W44	Project:	CPRC0F17002
Sample ID:	436735007	Client ID:	CPRC001
Matrix:	SOIL		
Collect Date:	30-OCT-17 10:37		
Receive Date:	01-NOV-17		
Collector:	Client		
Moisture:	5.09%		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON "Dry Weight Corrected"												
Chloride	B	1370	699	1940	ug/Kg	9.22	1	MXL2	11/03/17	0345	1715523	1
Fluoride	B	709	330	971	ug/Kg	9.22	1					
Nitrate-N	B	572	320	971	ug/Kg	9.22	1					
Nitrite-N	U	320	320	971	ug/Kg	9.22	1					
Sulfate	B	2530	1290	3880	ug/Kg	9.22	1					
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	U	117	117	292	ug/Kg	27.7	1	VH1	11/10/17	1029	1715592	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	11/09/17	1150	1715590
SW846 9056A	SW846 9056A Total Anions in Soil	MXL2	11/02/17	1453	1715518

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: November 13, 2017

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F17-002

Client Sample ID:	B38W45	Project:	CPRC0F17002
Sample ID:	436735008	Client ID:	CPRC001
Matrix:	SOIL		
Collect Date:	30-OCT-17 10:45		
Receive Date:	01-NOV-17		
Collector:	Client		
Moisture:	5.1%		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON "Dry Weight Corrected"												
Chloride	B	1560	712	1980	ug/Kg	9.39	1	MXL2	11/03/17	0414	1715523	1
Fluoride	B	607	336	989	ug/Kg	9.39	1					
Nitrate-N	B	635	326	989	ug/Kg	9.39	1					
Nitrite-N	U	326	326	989	ug/Kg	9.39	1					
Sulfate	B	3880	1320	3960	ug/Kg	9.39	1					
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	U	133	133	333	ug/Kg	31.6	1	VH1	11/10/17	1029	1715592	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	11/09/17	1150	1715590
SW846 9056A	SW846 9056A Total Anions in Soil	MXL2	11/02/17	1453	1715518

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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

Certificate of Analysis

Report Date: November 13, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-002

Client Sample ID: B38W46
Sample ID: 436735009
Matrix: SOIL
Collect Date: 30-OCT-17 09:55
Receive Date: 01-NOV-17
Collector: Client
Moisture: 6.11%

Project: CPRC0F17002
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON "Dry Weight Corrected"												
Chloride	B	1660	734	2040	ug/Kg	9.57	1	MXL2	11/03/17	0443	1715523	1
Fluoride	B	988	347	1020	ug/Kg	9.57	1					
Nitrate-N		1360	336	1020	ug/Kg	9.57	1					
Nitrite-N	U	336	336	1020	ug/Kg	9.57	1					
Sulfate		6850	1360	4080	ug/Kg	9.57	1					
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	U	148	148	371	ug/Kg	34.8	1	VH1	11/10/17	1030	1715592	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	11/09/17	1150	1715590
SW846 9056A	SW846 9056A Total Anions in Soil	MXL2	11/02/17	1453	1715518

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: November 13, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-002

Client Sample ID: B38W47 Project: CPRC0F17002
Sample ID: 436735010 Client ID: CPRC001
Matrix: SOIL
Collect Date: 30-OCT-17 07:35
Receive Date: 01-NOV-17
Collector: Client
Moisture: <0.1%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON "Dry Weight Corrected"												
Chloride		3600	694	1930	ug/Kg	9.64	1	MXL2	11/03/17	0609	1715523	1
Fluoride	B	390	328	964	ug/Kg	9.64	1					
Nitrate-N	B	515	318	964	ug/Kg	9.64	1					
Nitrite-N	U	318	318	964	ug/Kg	9.64	1					
Sulfate	B	2790	1280	3860	ug/Kg	9.64	1					
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	U	103	103	258	ug/Kg	25.8	1	VH1	11/10/17	1030	1715592	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	11/09/17	1150	1715590
SW846 9056A	SW846 9056A Total Anions in Soil	MXL2	11/02/17	1453	1715518

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

Quality Control Summary

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

QC Summary

Report Date: November 13, 2017

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **436735**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 1715523										
QC1203911269 436735009 DUP										
Chloride	B	1660	B	1610	ug/Kg	3 ^		(+/-2040)	MXL2	11/03/17 05:11
Fluoride	B	988	B	941	ug/Kg	4.84 ^		(+/-1020)		
Nitrate-N		1360		1320	ug/Kg	2.73 ^		(+/-1020)		
Nitrite-N	U	336	U	337	ug/Kg	N/A				
Sulfate		6850		6560	ug/Kg	4.32 ^		(+/-4090)		
QC1203911270 436735010 DUP										
Chloride		3600		3640	ug/Kg	1.23 ^		(+/-1930)		11/03/17 06:38
Fluoride	B	390	B	377	ug/Kg	3.53 ^		(+/-966)		
Nitrate-N	B	515	B	506	ug/Kg	1.65 ^		(+/-966)		
Nitrite-N	U	318	U	319	ug/Kg	N/A				
Sulfate	B	2790	B	2530	ug/Kg	9.66 ^		(+/-3870)		
QC1203911268 LCS										
Chloride	49900			47500	ug/Kg		95.3	(80%-120%)		11/02/17 22:27
Fluoride	24900			23700	ug/Kg		95	(80%-120%)		
Nitrate-N	24900			24000	ug/Kg		96.1	(80%-120%)		

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QC Summary

Workorder: **436735**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1715523											
Nitrite-N	24900				24500	ug/Kg		98.4	(80%-120%)	MXL2	11/02/17 22:27
Sulfate	99800				100000	ug/Kg		100	(80%-120%)		
QC1203911267 MB											
Chloride				U	716	ug/Kg					11/02/17 21:58
Fluoride				U	338	ug/Kg					
Nitrate-N				U	328	ug/Kg					
Nitrite-N				U	328	ug/Kg					
Sulfate				U	1320	ug/Kg					
QC1203911271 436735009 MS											
Chloride	51200	B	1660		49000	ug/Kg		92.6	(75%-125%)		11/03/17 05:40
Fluoride	25600	B	988		23400	ug/Kg		87.5	(75%-125%)		
Nitrate-N	25600		1360		25500	ug/Kg		94.5	(75%-125%)		
Nitrite-N	25600	U	336		25100	ug/Kg		98.2	(75%-125%)		
Sulfate	102000		6850		108000	ug/Kg		98.9	(75%-125%)		
QC1203911272 436735010 MS											
Chloride	48300		3600		47500	ug/Kg		90.9	(75%-125%)		11/03/17 07:07
Fluoride	24200	B	390		22700	ug/Kg		92.2	(75%-125%)		
Nitrate-N	24200	B	515		22900	ug/Kg		92.8	(75%-125%)		

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QC Summary

Workorder: **436735**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1715523											
Nitrite-N	24200	U	318		23500	ug/Kg		97.2	(75%-125%)	MXL2	11/03/17 07:07
Sulfate	96600	B	2790		97200	ug/Kg		97.7	(75%-125%)		
Spectrometric Analysis											
Batch 1715592											
QC1203911481 436735010 DUP											
Hexavalent Chromium		U	103	U	103	ug/Kg	N/A			VH1	11/10/17 10:30
QC1203911480 ILCS											
Hexavalent Chromium	7850				7610	ug/Kg		96.9	(80%-120%)		11/10/17 10:20
QC1203911479 LCS											
Hexavalent Chromium	3830				3910	ug/Kg		102	(80%-120%)		11/10/17 10:19
QC1203911478 MB											
Hexavalent Chromium				U	150	ug/Kg					11/10/17 10:19
QC1203911483 436735010 MS											
Hexavalent Chromium	3390	U	103		2860	ug/Kg		83.6	(75%-125%)		11/10/17 10:31

Notes:

The Qualifiers in this report are defined as follows:

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

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QC Summary

Workorder: **436735**

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.

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL436735
Work Order #: 436735

Product: **Dry Weight**
Analytical Method: Dry Soil Prep
Analytical Procedure: GL-OA-E-020 REV# 12
Analytical Batch: 1714934

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

GEL Sample ID#	Client Sample Identification
436735001	B38W38
436735002	B38W39
436735003	B38W40
436735004	B38W41
436735005	B38W42
436735006	B38W43
436735007	B38W44
436735008	B38W45
436735009	B38W46
436735010	B38W47
1203909919	436735001(B38W38) Sample Duplicate (DUP)

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

Data Summary:

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.

Product: **GAMMA_GS:COMMON**
Analytical Method: GAMMA_GS
Analytical Procedure: GL-RAD-A-013 REV# 27
Analytical Batch: 1714961

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 22
Preparation Batch: 1714934

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

GEL Sample ID#	Client Sample Identification
436735001	B38W38

436735002	B38W39
436735003	B38W40
436735004	B38W41
436735005	B38W42
436735006	B38W43
436735007	B38W44
436735008	B38W45
436735009	B38W46
436735010	B38W47
1203909969	Method Blank (MB)
1203909970	436690001(NonSDG) Sample Duplicate (DUP)
1203909971	Laboratory Control Sample (LCS)

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

Data Summary:

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.

Qualifier Information

Qualifier	Reason	Analyte	Sample	Client Sample
X	Results are considered a false positive due to low abundance.	Europium-152	436735004	B38W41

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: GEL436735 GEL Work Order: 436735

The Qualifiers in this report are defined as follows:

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

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

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: Heather McCarty **Name: Heather McCarty**

Date: 24 NOV 2017 **Title: Analyst II**

Sample Data Summary

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17002**
Lab Sample ID:	**436735001**	**Date Collected:**	**10/30/2017 09:45**	**Matrix:**	**SOIL**
		Date Received:	**11/01/2017 09:00**	**%Moisture:**	**7.9**
Client ID:	**B38W38**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1714961**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**11/02/2017 12:26**	**Analyst:**	**MXR1**	**Instrument:**	**GAM36**
Data File:	**G436735001.CNF;1**	**Aliquot:**	**145.112 g**	**Count Time:**	**60 min**
Prep Batch:	**1714961**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**11/02/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	-0.00774	pCi/g	+/-0.041	0.0411	0.0713	0.100
10198-40-0	Cobalt-60	U	-0.00607	pCi/g	+/-0.0421	0.0422	0.0884	
14683-23-9	Europium-152	U	0.0178	pCi/g	+/-0.105	0.106	0.200	
15585-10-1	Europium-154	U	-0.127	pCi/g	+/-0.142	0.153	0.243	
14391-16-3	Europium-155	U	0.0539	pCi/g	+/-0.0945	0.0978	0.196	

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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

The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17002**
Lab Sample ID:	**436735002**	**Date Collected:**	**10/30/2017 09:55**	**Matrix:**	**SOIL**
		Date Received:	**11/01/2017 09:00**	**%Moisture:**	**6.2**
Client ID:	**B38W39**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1714961**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**11/02/2017 12:27**	**Analyst:**	**MXR1**	**Instrument:**	**GAM40**
Data File:	**G436735002.CNF;1**	**Aliquot:**	**149.848 g**	**Count Time:**	**60 min**
Prep Batch:	**1714961**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**11/02/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	-0.0162	pCi/g	+/-0.0342	0.035	0.0608	0.100
10198-40-0	Cobalt-60	U	-0.00646	pCi/g	+/-0.0312	0.0313	0.0628	
14683-23-9	Europium-152	U	0.0509	pCi/g	+/-0.0788	0.0823	0.166	
15585-10-1	Europium-154	U	-0.0632	pCi/g	+/-0.109	0.113	0.197	
14391-16-3	Europium-155	U	0.0423	pCi/g	+/-0.0955	0.0974	0.185	

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17002**
Lab Sample ID:	**436735003**	**Date Collected:**	**10/30/2017 10:07**	**Matrix:**	**SOIL**
		Date Received:	**11/01/2017 09:00**	**%Moisture:**	**20.6**
Client ID:	**B38W40**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1714961**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**11/02/2017 12:27**	**Analyst:**	**MXR1**	**Instrument:**	**GAM43**
Data File:	**G436735003.CNF;1**	**Aliquot:**	**144.906 g**	**Count Time:**	**60 min**
Prep Batch:	**1714961**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**11/02/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.00344	pCi/g	+/-0.0343	0.0343	0.0679	0.100
10198-40-0	Cobalt-60	U	-0.00277	pCi/g	+/-0.035	0.035	0.0706	
14683-23-9	Europium-152	U	0.0397	pCi/g	+/-0.0866	0.0885	0.159	
15585-10-1	Europium-154	U	0.0327	pCi/g	+/-0.128	0.129	0.262	
14391-16-3	Europium-155	U	0.0283	pCi/g	+/-0.087	0.088	0.168	

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17002**
Lab Sample ID:	**436735004**	**Date Collected:**	**10/30/2017 10:15**	**Matrix:**	**SOIL**
		Date Received:	**11/01/2017 09:00**	**%Moisture:**	**5.3**
Client ID:	**B38W41**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1714961**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**11/02/2017 12:28**	**Analyst:**	**MXR1**	**Instrument:**	**GAM44**
Data File:	**G436735004.CNF;1**	**Aliquot:**	**138.646 g**	**Count Time:**	**60 min**
Prep Batch:	**1714961**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**11/02/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.028	pCi/g	+/-0.0565	0.0565	0.074	0.100
10198-40-0	Cobalt-60	U	-0.00498	pCi/g	+/-0.0381	0.0381	0.0755	
14683-23-9	Europium-152	UX	0.00	pCi/g	+/-0.159	0.182	0.152	
15585-10-1	Europium-154	U	0.0957	pCi/g	+/-0.128	0.135	0.284	
14391-16-3	Europium-155	U	0.0273	pCi/g	+/-0.0934	0.0943	0.182	

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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

The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17002**
Lab Sample ID:	**436735005**	**Date Collected:**	**10/30/2017 10:25**	**Matrix:**	**SOIL**
		Date Received:	**11/01/2017 09:00**	**%Moisture:**	**5.8**
Client ID:	**B38W42**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1714961**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**11/02/2017 12:40**	**Analyst:**	**MXR1**	**Instrument:**	**GAM16**
Data File:	**G436735005.CNF;1**	**Aliquot:**	**149.697 g**	**Count Time:**	**60 min**
Prep Batch:	**1714961**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**11/02/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.00666	pCi/g	+/-0.026	0.0262	0.0527	0.100
10198-40-0	Cobalt-60	U	-0.00545	pCi/g	+/-0.0228	0.023	0.0457	
14683-23-9	Europium-152	U	0.0675	pCi/g	+/-0.0765	0.0825	0.162	
15585-10-1	Europium-154	U	-0.00164	pCi/g	+/-0.103	0.103	0.202	
14391-16-3	Europium-155	U	-0.0161	pCi/g	+/-0.0667	0.0671	0.126	

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
The MDC is a sample specific MDC.

Rad

Certificate of Analysis

Sample Summary

SDG Number:	**GEL436735**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17002**
Lab Sample ID:	**436735006**	**Date Collected:**	**10/30/2017 10:30**	**Matrix:**	**SOIL**
		Date Received:	**11/01/2017 09:00**	**%Moisture:**	**6.7**
Client ID:	**B38W43**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1714961**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**11/02/2017 12:40**	**Analyst:**	**MXR1**	**Instrument:**	**GAM18**
Data File:	**G436735006.CNF;1**	**Aliquot:**	**158.33 g**	**Count Time:**	**60 min**
Prep Batch:	**1714961**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**11/02/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	-0.0239	pCi/g	+/-0.0282	0.0302	0.048	0.100
10198-40-0	Cobalt-60	U	-0.0105	pCi/g	+/-0.0307	0.031	0.057	
14683-23-9	Europium-152	U	0.0261	pCi/g	+/-0.0752	0.0761	0.136	
15585-10-1	Europium-154	U	-0.0195	pCi/g	+/-0.0917	0.0921	0.166	
14391-16-3	Europium-155	U	0.0695	pCi/g	+/-0.0823	0.0883	0.162	

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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

The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17002**
Lab Sample ID:	**436735007**	**Date Collected:**	**10/30/2017 10:37**	**Matrix:**	**SOIL**
		Date Received:	**11/01/2017 09:00**	**%Moisture:**	**5.1**
Client ID:	**B38W44**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1714961**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**11/02/2017 12:41**	**Analyst:**	**MXR1**	**Instrument:**	**GAM19**
Data File:	**G436735007.CNF;1**	**Aliquot:**	**161.586 g**	**Count Time:**	**60 min**
Prep Batch:	**1714961**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**11/02/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.0483	pCi/g	+/-0.0587	0.0588	0.0569	0.100
10198-40-0	Cobalt-60	U	0.00919	pCi/g	+/-0.0159	0.0164	0.0435	
14683-23-9	Europium-152	U	-0.0101	pCi/g	+/-0.0885	0.0886	0.167	
15585-10-1	Europium-154	U	-0.0187	pCi/g	+/-0.0898	0.0902	0.172	
14391-16-3	Europium-155	U	0.0237	pCi/g	+/-0.0887	0.0894	0.167	

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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

The MDC is a sample specific MDC.

Rad

Certificate of Analysis

Sample Summary

SDG Number:	**GEL436735**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17002**
Lab Sample ID:	**436735008**	**Date Collected:**	**10/30/2017 10:45**	**Matrix:**	**SOIL**
		Date Received:	**11/01/2017 09:00**	**%Moisture:**	**5.1**
Client ID:	**B38W45**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1714961**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**11/02/2017 13:54**	**Analyst:**	**MXR1**	**Instrument:**	**GAM01**
Data File:	**G436735008.CNF;1**	**Aliquot:**	**151.5 g**	**Count Time:**	**60 min**
Prep Batch:	**1714961**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**11/02/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.0182	pCi/g	+/-0.0384	0.0393	0.0786	0.100
10198-40-0	Cobalt-60	U	0.00741	pCi/g	+/-0.0263	0.0265	0.0621	
14683-23-9	Europium-152	U	-0.0592	pCi/g	+/-0.080	0.0845	0.144	
15585-10-1	Europium-154	U	0.00849	pCi/g	+/-0.104	0.104	0.220	
14391-16-3	Europium-155	U	0.0575	pCi/g	+/-0.0953	0.099	0.185	

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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

The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL436735**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17002**
Lab Sample ID:	**436735009**	**Date Collected:**	**10/30/2017 09:55**	**Matrix:**	**SOIL**
		Date Received:	**11/01/2017 09:00**	**%Moisture:**	**6.1**
Client ID:	**B38W46**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1714961**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**11/02/2017 13:55**	**Analyst:**	**MXR1**	**Instrument:**	**GAM03**
Data File:	**G436735009.CNF;1**	**Aliquot:**	**151.538 g**	**Count Time:**	**60 min**
Prep Batch:	**1714961**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**11/02/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	-0.0288	pCi/g	+/-0.0319	0.0345	0.0529	0.100
10198-40-0	Cobalt-60	U	0.0217	pCi/g	+/-0.0295	0.0312	0.0717	
14683-23-9	Europium-152	U	-0.0518	pCi/g	+/-0.0844	0.0877	0.153	
15585-10-1	Europium-154	U	-0.0581	pCi/g	+/-0.125	0.128	0.224	
14391-16-3	Europium-155	U	-0.0336	pCi/g	+/-0.0952	0.0965	0.172	

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
The MDC is a sample specific MDC.

Rad

Certificate of Analysis

Sample Summary

SDG Number:	**GEL436735**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17002**
Lab Sample ID:	**436735010**	**Date Collected:**	**10/30/2017 07:35**	**Matrix:**	**SOIL**
		Date Received:	**11/01/2017 09:00**	**%Moisture:**	**0**
Client ID:	**B38W47**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1714961**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**11/02/2017 13:55**	**Analyst:**	**MXR1**	**Instrument:**	**GAM08**
Data File:	**G436735010.CNF;1**	**Aliquot:**	**148.114 g**	**Count Time:**	**60 min**
Prep Batch:	**1714961**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**11/02/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.00773	pCi/g	+/-0.0184	0.0187	0.045	0.100
10198-40-0	Cobalt-60	U	0.0125	pCi/g	+/-0.0302	0.0307	0.0704	
14683-23-9	Europium-152	U	0.022	pCi/g	+/-0.0607	0.0615	0.130	
15585-10-1	Europium-154	U	-0.0609	pCi/g	+/-0.0909	0.0952	0.151	
14391-16-3	Europium-155	U	-0.00366	pCi/g	+/-0.0743	0.0743	0.141	

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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

The MDC is a sample specific MDC.

Quality Control Summary

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

QC Summary

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

Workorder: 436735

Report Date: November 24, 2017

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gamma Spec									
Batch 1714961									
QC1203909969 MB									
Cesium-137			U	0.00859	pCi/g			MXR1	11/02/1713:56
Uncert:				+/-0.0207					
TPU:				+/-0.0211					
Cobalt-60			U	-0.00904	pCi/g				
Uncert:				+/-0.0214					
TPU:				+/-0.0218					
Europium-152			U	0.0136	pCi/g				
Uncert:				+/-0.0516					
TPU:				+/-0.0519					
Europium-154			U	0.0226	pCi/g				
Uncert:				+/-0.0667					
TPU:				+/-0.0675					
Europium-155			U	0.000534	pCi/g				
Uncert:				+/-0.0484					
TPU:				+/-0.0484					
QC1203909970 436690001 DUP									
Cesium-137		U -0.0144		0.0378	pCi/g				11/02/1715:46
Uncert:		+/-0.0232		+/-0.0348		RPD:	13	(0% - 100%)	
TPU:		+/-0.0241		+/-0.0349		RER:	0.944	(0-2)	
Cobalt-60		U -0.00984	U	0.000355	pCi/g				
Uncert:		+/-0.0232		+/-0.0194		RPD:	0	N/A	
TPU:		+/-0.0237		+/-0.0194		RER:	1.79	(0-2)	
Europium-152		U 0.0259	U	-0.00215	pCi/g				
Uncert:		+/-0.0481		+/-0.0443		RPD:	0	N/A	
TPU:		+/-0.0496		+/-0.0443		RER:	0.702	(0-2)	
Europium-154		U 0.0398	U	-0.0265	pCi/g				
Uncert:		+/-0.0621		+/-0.0652		RPD:	0	N/A	
TPU:		+/-0.0648		+/-0.0664		RER:	1.88	(0-2)	
Europium-155		U 0.0568	U	0.0343	pCi/g				
Uncert:		+/-0.0877		+/-0.0512		RPD:	0	N/A	
TPU:		+/-0.0878		+/-0.0536		RER:	0.135	(0-2)	
QC1203909971 LCS									
Americium-241	488			554	pCi/g	REC:	113	(80%-120%)	11/02/1713:56
Uncert:				+/-14.5					
TPU:				+/-62.8					
Cesium-137	175			172	pCi/g	REC:	99	(80%-120%)	
Uncert:				+/-3.32					
TPU:				+/-14.4					
Cobalt-60	139			135	pCi/g	REC:	97	(80%-120%)	
Uncert:				+/-3.58					
TPU:				+/-13.6					
Europium-152			U	-0.15	pCi/g				
Uncert:				+/-1.47					
TPU:				+/-1.47					

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QC Summary

Workorder: **436735**

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gamma Spec									
Batch 1714961									
Europium-154			U	0.0644	pCi/g				
	Uncert:			+/-0.942					
	TPU:			+/-0.943					
Europium-155			U	0.138	pCi/g				
	Uncert:			+/-1.37					
	TPU:			+/-1.37					

Notes:

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

The Qualifiers in this report are defined as follows:

*	Duplicate analysis not within control limits
+	Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
<	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide
>	Result greater than quantifiable range or greater than upper limit of the analysis range
A	The TIC is a suspected aldol-condensation product
B	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
B	The analyte was detected in both the associated QC blank and in the sample.
B	The associated QC sample blank has a result >= 2X the MDA and, after corrections, result is >= MDA for this sample
C	Analyte has been confirmed by GC/MS analysis
C	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.
D	Results are reported from a diluted aliquot of sample.
E	Concentration exceeds the calibration range of the instrument
E	Reported value is estimated due to interferences. See comment in narrative.
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
M	Duplicate precision not met.
N	Spike Sample recovery is outside control limits.
P	Aroclor target analyte with greater than 25% difference between column analyses.
S	Reported value determined by the Method of Standard Additions (MSA)
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.
UX	Gamma Spectroscopy--Uncertain identification
W	Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Z	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
o	Analyte failed to recover within LCS limits (0rganics only)

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QC Summary

Workorder: **436735**

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	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.
** Indicates analyte is a surrogate compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

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