GEL Laboratories LLC
a member of The GEL Group INC

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gel.com

March 29, 2018

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

Re: CHPRC SAF F16-045
Work Order: 445222
SDG: GEL445222

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on March 06, 2018. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

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

Sincerely,

Heather Shaffer

Heather Shaffer
Project Manager

Purchase Order: 304235 - 7C
Chain of Custody: F16-045-1000, F16-045-1003, F16-045-1011, F16-045-1015, F16-045-1019, F16-045-1023, F16-045-1053, F16-045-978, F16-045-982, F16-045-983, F16-045-985, F16-045-986, F16-045-989, F16-045-990, F16-045-992, F16-045-993, F16-045-997 and F16-045-999
Enclosures

Table of Contents

Sample Issue Resolution.....1

Case Narrative.....3

Chain of Custody and Supporting Documentation.....10

Data Review Qualifier Definitions.....30

Laboratory Certifications.....32

Volatile Analysis.....34

Case Narrative.....35

Sample Data Summary.....39

Quality Control Summary.....58

Metals Analysis.....68

Case Narrative.....69

Sample Data Summary.....73

Quality Control Summary.....83

General Chem Analysis.....91

Case Narrative.....92

Sample Data Summary.....98

Quality Control Summary.....110

Radiological Analysis.....113

Case Narrative.....114

Sample Data Summary.....120

Quality Control Summary.....157

Sample Issue Resolution

SAMPLE ISSUE RESOLUTION (SIR) REPORT

SIR Number: SIR18-0529
Rev. Number: 0
Date Initiated: 03/08/2018

SAMPLE EVENT INFORMATION

SAF NUM(S): F16-045

LABORATORY: GEL

SAMPLING INFORMATION

NUMBER OF SAMPLES: 1

SAMPLE NUMBERS: B3HW41

SAMPLE MATRIX: WATER

SDG NUM(S): GEL445222

ISSUE BACKGROUND

CLASS: Field Sampling Issue

TYPE: Insufficient Sample Volume Collected

DESCRIPTION: One vial for 8260_VOA analysis on sample ID B3HW41 was received with headspace

RESOLUTION

PROPOSED RESOLUTION: The lab will avoid using this vial.

FINAL RESOLUTION: Accept proposed resolution.

SUBMITTED BY:

SHAFFER, H 03/08/2018

ACCEPTED BY:

NAGEL, SE 03/08/2018

Case Narrative

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF F16-045
SDG: GEL445222

March 29, 2018

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 March 06, 2018, 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
445222001	B3HW01
445222002	B3HW05
445222003	B3HW08
445222004	B3FP30
445222005	B3HW10
445222006	B3HW13
445222007	B3HW14
445222008	B3FP52
445222009	B3HW16
445222010	B3HW20
445222011	B3FP56
445222012	B3HW22
445222013	B3HW25
445222014	B3HW33
445222015	B3HW37
445222016	B3HW41
445222017	B3HW45
445222018	B3HW72

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/MS Volatile, 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.

Heather Shaffer

Heather Shaffer
Project Manager

Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL445222
Work Order #: 445222

GC/MS Volatile

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

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

Technical Information

Sample Dilutions/Methanol Dilutions
Samples were diluted because target analyte concentrations exceeded the calibration range.

Analyte	445222								
	001	**002**	**006**	**013**	**014**	**015**	**016**	**017**	**018**
Carbon tetrachloride	2X	10X	10X	4X	10X	10X	4X	25X	5X

Metals

Determination of Metals by ICP

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.

Determination of Metals by ICP-MS

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.

General Chemistry

Cyanide, Free

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

Additional Comments
Total CN levels above the MDL for Free CN were detected in samples . Free CN was performed per SOP (GL-GC-E-073).

Cyanide, Total

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.

Cyanide, Chlorinated

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 Re-analysis
Sample445222007 (B3HW14) was re-analyzed due to instrument failure. The results from the reanalysis are reported.

Cyanide, Amenable to Chlorination

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.

Cyanide, Free

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

I129LL_SEP_LEPS_GS: COMMON (low level)

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.

C14_LSC: 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.

Technical Information

Recounts
Sample 445222016 (B3HW41) was recounted due to results more negative than the three sigma TPU. The second count is reported.

Miscellaneous Information

Additional Comments
The matrix spike, 1203984386 (B3HW01MS), aliquot was reduced to conserve sample volume.

TRITIUM_DIST_LSC: 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.

Technical Information

Recounts
Samples 1203984405 (B3HW01MS) and 1203984406 (LCS) were recounted due to low recovery. The recounts are reported. Samples 1203984404 (B3HW01DUP), 445222001 (B3HW01), 445222002 (B3HW05), 445222006 (B3HW13), 445222013 (B3HW25), 445222015 (B3HW37), 445222016 (B3HW41) and 445222017 (B3HW45) were recounted due to high MDCs. The recounts are reported. Samples 1203984403 (MB), 445222014 (B3HW33) and 445222018 (B3HW72) were recounted due to high MDCs and then recounted due to results more negative than the three sigma TPU. The third counts are reported.

Miscellaneous Information

Additional Comments
The matrix spike, 1203984405 (B3HW01MS), aliquot was reduced to conserve sample volume.

TC99_EIE_LSC: 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.

Technical Information

Recounts
Samples 1203986368 (B3HW01DUP), 445222001 (B3HW01), 445222002 (B3HW05), 445222006 (B3HW13), 445222013 (B3HW25), 445222014 (B3HW33), 445222016 (B3HW41) and 445222017 (B3HW45) were recounted to verify sample results. Recounts are reported.

Certification Statement

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

Chain of Custody and Supporting Documentation

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445222			F16-045-978	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC		REQUIRED TAT 30 Days
SAMPLING LOCATION: Valve V03-YE01, 289TC, 299-W15-225	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045	ORIGINAL	
ICE CHEST NO.: GWS-683	FIELD LOGBOOK NO.: HNF-N-491 19	ACTUAL SAMPLE DEPTH: N/A	PURCHASE ORDER/CHARGE CODE: 304235	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9106		BILL OF LADING/AIR BILL NO.: 7717 2337 1920		

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	HCl or H2SO4 to pH <2/Cool <=6C	HNO3 to pH <2	HNO3 to pH <2	None	None
HOLDING TIME	14 Days	6 Months	6 Months	6 Months	6 Months
TYPE OF CONTAINER	aGs*	G/P	G/P	P	G/P
NO. OF CONTAINER(S)	4	1	1	1	4
VOLUME	40mL	500mL	500mL	1L	1L
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	TC99_EIE_LSC: COMMON;	TRITIUM_DIST_LSC: COMMON; C14_LSC: COMMON;	I129LL_SEP_LEPS_GS: COMMON;

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B3HW01	N/A	WATER	MAR 05 2018	0956	✓	✓	✓	✓	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC	MAR 05 2018 1110	Roger Friesz Jr. /CHPRC	MAR 05 2018 1110
Roger Friesz Jr. /CHPRC	MAR 05 2018 1200	Lesly Wall /CHPRC	MAR 05 2018 1200
Lesly Wall /CHPRC	MAR 05 2018 1400	FEDEX	
Fed Ex		C-Tarplin	3/6/18 0903

SPECIAL INSTRUCTIONS
TRVL-18-083
(1) 8260_VOA_GCMS: COMMON {Carbon tetrachloride, Chloroform, Methylene chloride, Trichloroethene, Vinyl chloride}; 8260_VOA_GCMS: CH 01 {Chloromethane}; 8260_VOA_GCMS: COMMON (Add-on) {cis-1,2-Dichloroethylene};
(2) 6020_METALS_ICPMS: COMMON {Aluminum, Cadmium, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Arsenic, Manganese, Nickel, Uranium, Zinc}; 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron};

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/14/2018 FSR ID = FSR57679 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 465222	F16-045-982	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	REQUIRED TAT
Tim Callaway /CHPRC	SUMNER, LC	376-3922	SUMNER, LC	30 Days

SAMPLING LOCATION	PROJECT DESIGNATION	SAF NO.	
Valve V03-YE02, 289TC, 299-W14-20	200W Pump & Treat - Extraction Well Water Sampling	F16-045	ORIGINAL

ICE CHEST NO.	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH	PURCHASE ORDER/CHARGE CODE	METHOD OF SHIPMENT
GWS-749	HNF-N-491 19	N/A	304235	FEDERAL EXPRESS

SHIPPED TO	OFFSITE PROPERTY NO.	BILL OF LADING/AIR BILL NO.
GEL Laboratories, LLC	9106	7717 2337 1974

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	HCl or H2SO4 to pH <2/Cool <=6C	HNO3 to pH <2	HNO3 to pH <2	None	None	NaOH to pH >=12/Cool <=6C
HOLDING TIME	14 Days	6 Months	6 Months	6 Months	6 Months	14 Days
TYPE OF CONTAINER	aGs*	G/P	G/P	P	G/P	aG
NO. OF CONTAINER(S)	4	1	1	1	4	1
VOLUME	40mL	500mL	500mL	1L	1L	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	TC99_EIE_LSC: COMMON;	TRITIUM_DIST_LSC: COMMON; C14_LSC: COMMON;	I129LL_SEP_LEPS_GS: COMMON;	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME						
B3HW05	N/A	WATER	MAR 05 2018	1015	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC	MAR 05 2018 1110	Roger Friesz Jr. /CHPRC	MAR 05 2018 1110
Roger Friesz Jr. /CHPRC	MAR 05 2018 1200	Lesly Wall /CHPRC	MAR 05 2018 1200
Lesly Wall /CHPRC	MAR 05 2018 1400	FEDEX	
Fed Ex		C. Tarplin	3/6/18 0800

SPECIAL INSTRUCTIONS
TRVL-18-083
(1) 8260_VOA_GCMS: COMMON {Carbon tetrachloride, Chloroform, Methylene chloride, Trichloroethene, Vinyl chloride}; 8260_VOA_GCMS: CH 01 {Chloromethane}; 8260_VOA_GCMS: COMMON (Add-on) {cis-1,2-Dichloroethylene};
(2) 6020_METALS_ICPMS: COMMON {Aluminum, Cadmium, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Arsenic, Manganese, Nickel, Uranium, Zinc}; 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron};
(3) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/14/2018 FSR ID = FSR57680 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

APRIL 2, 2018

REV. 0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445222			F16-045-983	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT: 30 Days	
SAMPLING LOCATION: Valve V03-YE02, 289TC, 299-W14-20	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045	ORIGINAL	
ICE CHEST NO.: GWS-614	FIELD LOGBOOK NO.: HNF-N-49119	ACTUAL SAMPLE DEPTH: N/A	PURCHASE ORDER/CHARGE CODE: 304235	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9106		BILL OF LADING/AIR BILL NO.: 7717 2337 1600		

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	NaOH to pH >=12/Cool <=6C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B3HW08	Yes	WATER	MAR 05 2018	1015	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC	MAR 05 2018 1110	Roger Friesz Jr. /CHPRC	MAR 05 2018 1110
Roger Friesz Jr. /CHPRC	MAR 05 2018 1200	Lesly Wall /CHPRC	MAR 05 2018 1200
Lesly Wall /CHPRC	MAR 05 2018 1400	FEDEX	
Fed Ex		C-Tarplin	3/6/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-083
(1) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/14/2018 FSR ID = FSR57680 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

APRIL 2, 2018

REV. 0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445222			F16-045-985	PAGE 1 OF 1
COLLECTOR: Tim Calloway /CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT: 30 Days	
SAMPLING LOCATION: Valve V03-YE02, 289TC, 299-W14-20 DUP	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045	ORIGINAL	
ICE CHEST NO.: GWS-614	FIELD LOGBOOK NO.: HNF-N-49119	ACTUAL SAMPLE DEPTH: N/A	PURCHASE ORDER/CHARGE CODE: 304235	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9106		BILL OF LADING/AIR BILL NO.: 7717 2337 1600		

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	NaOH to pH >=12/Cool <=6C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B3FP30	N/A	WATER	MAR 05 2018	1015	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Tim Calloway /CHPRC	MAR 05 2018 1110	Roger Friesz Jr. /CHPRC	MAR 05 2018 1110
Roger Friesz Jr. /CHPRC	MAR 05 2018 1200	Lesly Wall /CHPRC	MAR 05 2018 1200
Lesly Wall /CHPRC	MAR 05 2018 1400	FEDEX	
Fed Ex		C. Traplin	3/6/18 0900

SIGN/ PRINT NAMES

SPECIAL INSTRUCTIONS
TRVL-18-083
(1) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/14/2018 FSR ID = FSR57682 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

APRIL 2, 2018

REV. 0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445222		F16-045-986	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT: 30 Days
SAMPLING LOCATION: Valve V03-YE02, 289TC, 299-W14-20 DUP	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045	ORIGINAL
ICE CHEST NO.: GWS-749	FIELD LOGBOOK NO.: HNF-N-491 19	ACTUAL SAMPLE DEPTH: N/A	PURCHASE ORDER/CHARGE CODE: 304235	METHOD OF SHIPMENT: FEDERAL EXPRESS
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9106		BILL OF LADING/AIR BILL NO.: 7717 2337 1974	

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	NaOH to pH >=12/Cool <=6C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B3HW10	Yes	WATER	MAR 0 5 2018	1015	✓

CHAIN OF POSSESSION: RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES: RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC	MAR 0 5 2018 1110	Roger Friesz Jr. /CHPRC	MAR 0 5 2018 1110
Roger Friesz Jr. /CHPRC	MAR 0 5 2018 1200	Lesly Wall /CHPRC	MAR 0 5 2018 1200
Lesly Wall /CHPRC	MAR 0 5 2018 1400	FEDEX	
Fed Ex		C. Tarplin	3/6/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-083
(1) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/14/2018 FSR ID = FSR57682 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

APRIL 2, 2018

REV. 0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445222	F16-045-989	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	REQUIRED TAT
Tim Callaway /CHPRC	SUMNER, LC	376-3922	SUMNER, LC	30 Days

SAMPLING LOCATION	PROJECT DESIGNATION	SAF NO.	
Valve V03-YE06, 289TC, 299-W11-50	200W Pump & Treat - Extraction Well Water Sampling	F16-045	ORIGINAL

ICE CHEST NO.	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH	PURCHASE ORDER/CHARGE CODE	METHOD OF SHIPMENT
GWS-734	HNF-N-491 19	N/A	304235	FEDERAL EXPRESS

SHIPPED TO	OFFSITE PROPERTY NO.	BILL OF LADING/AIR BILL NO.
GEL Laboratories, LLC	9106	7717 2337 1816

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	HCl or H2SO4 to pH <2/Cool <=6C	HNO3 to pH <2	HNO3 to pH <2	None	None	NaOH to pH >=12/Cool <=6C
HOLDING TIME	14 Days	6 Months	6 Months	6 Months	6 Months	14 Days
TYPE OF CONTAINER	aGs*	G/P	G/P	P	G/P	aG
NO. OF CONTAINER(S)	4	1	1	1	4	1
VOLUME	40mL	500mL	500mL	1L	1L	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	TC99_EIE_LSC: COMMON;	TRITIUM_DIST_LSC: COMMON; C14_LSC: COMMON;	I129LL_SEP_LEPS_GS: COMMON;	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME						
B3HW13	N/A	WATER	MAR 0 5 2018	1145	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
3/5/16 Tim Callaway /CHPRC	MAR 0 5 2018 1245	Leady Wall /CHPRC	MAR 0 5 2018 1245
Leady Wall /CHPRC	MAR 0 5 2018 1400 Fed Ex	FEDEX	
		C. Tarplin	3/6/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-083
(1) 8260_VOA_GCMS: COMMON {Carbon tetrachloride, Chloroform, Methylene chloride, Trichloroethene, Vinyl chloride}; 8260_VOA_GCMS: CH 01 {Chloromethane}; 8260_VOA_GCMS: COMMON (Add-on) {cis-1,2-Dichloroethylene};
(2) 6020_METALS_ICPMS: COMMON {Aluminum, Cadmium, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Arsenic, Manganese, Nickel, Uranium, Zinc}; 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron};
(3) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/14/2018 FSR ID = FSR57683 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

APRIL 2, 2018

REV. 0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445222			F16-045-990	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT: 30 Days	
SAMPLING LOCATION: Valve V03-YE06, 289TC, 299-W11-50	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045	ORIGINAL	
ICE CHEST NO.: 605-734	FIELD LOGBOOK NO.: HNF-N-491 19	ACTUAL SAMPLE DEPTH: N/A	PURCHASE ORDER/CHARGE CODE: 304235	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9166		BILL OF LADING/AIR BILL NO.: 7717 2337 1816		

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	NaOH to pH >=12/Cool <=6C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B3HW14	Yes	WATER	MAR 0 5 2018	1145	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC	MAR 0 5 2018 1245	Lesly Wall /CHPRC	MAR 0 5 2018 1245
Lesly Wall /CHPRC	MAR 0 5 2018 1400	FEDEX	
Fed Ex		C Thrplin	3/6/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-083
(1) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/14/2018 FSR ID = FSR57683 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

APRIL 2, 2018

REV. 0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445222			F16-045-992	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC		REQUIRED TAT: 30 Days
SAMPLING LOCATION: Valve V03-YE06, 289TC, 299-W11-50 DUP	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045	ORIGINAL	
ICE CHEST NO.: GWS-734	FIELD LOGBOOK NO.: HNF-N-491 19	ACTUAL SAMPLE DEPTH: N/A	PURCHASE ORDER/CHARGE CODE: 304235	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9106		BILL OF LADING/AIR BILL NO.: 7717 2337 1816		

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	NaOH to pH >=12/Cool <=6C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B3FP52	N/A	WATER	MAR 0 5 2018	1145	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC	MAR 0 5 2018 1245	Lesly Wall /CHPRC	MAR 0 5 2018 1245
Lesly Wall /CHPRC	MAR 0 5 2018 1400	FEDEX	
Fed Ex		C. Tarplin	3/6/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-083
(1) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/15/2018 FSR ID = FSR57685 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445222			F16-045-993	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT: 30 Days	
SAMPLING LOCATION: Valve V03-YE06, 289TC, 299-W11-50 DUP	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045	ORIGINAL	
ICE CHEST NO.: 605-734	FIELD LOGBOOK NO.: HNF-N-491 19	ACTUAL SAMPLE DEPTH: N/A	PURCHASE ORDER/CHARGE CODE: 304235	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9106		BILL OF LADING/AIR BILL NO.: 7717 2337 1816		

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	NaOH to pH >=12/Cool <=6C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B3HW16	Yes	WATER	MAR 05 2018	1145	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC	MAR 05 2018 1245	Lesly Wall /CHPRC	MAR 05 2018 1245
Lesly Wall /CHPRC	MAR 05 2018 1400	FEDEX	
Fed Ex		C. Tarplin	3/6/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-083
(1) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/15/2018 FSR ID = FSR57685 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

APRIL 2, 2018

REV. 0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445222		F16-045-997	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT 30 Days
SAMPLING LOCATION: Valve V03-YE07, 289TC, 299-W11-90	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045	ORIGINAL
ICE CHEST NO.: GWS-734	FIELD LOGBOOK NO.: HNF-N-491 19	ACTUAL SAMPLE DEPTH: N/A	PURCHASE ORDER/CHARGE CODE: 304235	METHOD OF SHIPMENT: FEDERAL EXPRESS
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9106		BILL OF LADING/AIR BILL NO.: 7717 2337 1816	

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	NaOH to pH >=12/Cool <=6C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B3HW20	Yes	WATER	MAR 05 2018	1215	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC T. Callaway	MAR 05 2018 1245	Lesly Wall /CHPRC Lesly Wall	MAR 05 2018 1245
Lesly Wall /CHPRC Lesly Wall	MAR 05 2018 1400	FEDEX	
Fed Ex		C. Thrplin	3/6/18 0100

SPECIAL INSTRUCTIONS
TRVL-18-083
(1) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/14/2018 FSR ID = FSR57686 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

APRIL 2, 2018

REV. 0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445222		F16-045-999	PAGE 1 OF 1
COLLECTOR Tim Callaway /CHPRC	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR SUMNER, LC	REQUIRED TAT 30 Days
SAMPLING LOCATION Valve V03-YE07, 289TC, 299-W11-90 DUP	PROJECT DESIGNATION 200W Pump & Treat - Extraction Well Water Sampling		SAF NO. F16-045	ORIGINAL
ICE CHEST NO. GWS-1734	FIELD LOGBOOK NO. HNF-N- 4191 19	ACTUAL SAMPLE DEPTH N/A	PURCHASE ORDER/CHARGE CODE 304235	METHOD OF SHIPMENT FEDERAL EXPRESS
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 9106		BILL OF LADING/AIR BILL NO. 7717 2337 1816	

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	NaOH to pH >=12/Cool <=6C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B3FP56	N/A	WATER	MAR 0 5 2018	1215	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC	MAR 0 5 2018 1245	Lesly Wall /CHPRC	MAR 0 5 2018 1245
Lesly Wall /CHPRC	MAR 0 5 2018 1400	FEDEX	
Fed Ex		C. Thrpin	3/6/18 0800

SPECIAL INSTRUCTIONS
TRVL-18-083
(1) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/14/2018 FSR ID = FSR57687 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445222		F16-045-1000	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT: 30 Days
SAMPLING LOCATION: Valve V03-YE07, 289TC, 299-W11-90 DUP	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045	ORIGINAL
ICE CHEST NO.: GWS-734	FIELD LOGBOOK NO.: HNF-N-491 19	ACTUAL SAMPLE DEPTH: N/A	PURCHASE ORDER/CHARGE CODE: 304235	METHOD OF SHIPMENT: FEDERAL EXPRESS
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9106		BILL OF LADING/AIR BILL NO.: 7717 2337 1816	

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	NaOH to pH >=12/Cool <=6C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B3HW22	Yes	WATER	MAR 05 2018	1215	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC	MAR 05 2018 1245	Lesly Wall /CHPRC	MAR 05 2018 1245
Lesly Wall /CHPRC	MAR 05 2018 1400	FEDEX	
Fed Ex		C. Tarplin	3/6/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-083
(1) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/14/2018 FSR ID = FSR57687 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

APRIL 2, 2018

REV. 0

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445222			F16-045-1003	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC		REQUIRED TAT: 30 Days
SAMPLING LOCATION: Valve V03-YE09, 289TC, 299-W17-3	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045	ORIGINAL	
ICE CHEST NO.: GWS- 749	FIELD LOGBOOK NO.: HNF-N- 49119	ACTUAL SAMPLE DEPTH: N/A	PURCHASE ORDER/CHARGE CODE: 304235	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9106		BILL OF LADING/AIR BILL NO.: 7717 2337 1974		

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	HCl or H2SO4 to pH <2/Cool <=6C	HNO3 to pH <2	HNO3 to pH <2	None	None
HOLDING TIME	14 Days	6 Months	6 Months	6 Months	6 Months
TYPE OF CONTAINER	aGs*	G/P	G/P	P	G/P
NO. OF CONTAINER(S)	4	1	1	1	4
VOLUME	40mL	500mL	500mL	1L	1L
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	TC99_EIE_LSC: COMMON;	TRITIUM_DIST_LSC: COMMON; C14_LSC: COMMON;	I129LL_SEP_LEPS_GS: COMMON;

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B3HW25	N/A	WATER	MAR 05 2018	0940	✓	✓	✓	✓	✓

CHAIN OF POSSESSION: RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES: RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC	MAR 05 2018 1110	Roger Friesz Jr. /CHPRC	MAR 05 2018 1110
Roger Friesz Jr. /CHPRC	MAR 05 2018 1200	Lesly Wall /CHPRC	MAR 05 2018 1200
Lesly Wall /CHPRC	MAR 05 2018 1400	FEDEX	
Fed Ex		C. Tarplin	3/6/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-083
(1) 8260_VOA_GCMS: COMMON {Carbon tetrachloride, Chloroform, Methylene chloride, Trichloroethene, Vinyl chloride}; 8260_VOA_GCMS: CH 01 {Chloromethane}; 8260_VOA_GCMS: COMMON (Add-on) {cis-1,2-Dichloroethylene};
(2) 6020_METALS_ICPMS: COMMON {Aluminum, Cadmium, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Arsenic, Manganese, Nickel, Uranium, Zinc}; 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron};

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/14/2018 FSR ID = FSR57688 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445222	F16-045-1011	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	REQUIRED TAT
Tim Callaway /CHPRC	SUMNER, LC	376-3922	SUMNER, LC	30 Days

SAMPLING LOCATION	PROJECT DESIGNATION	SAF NO.	
Valve V03-YE12, 289TC, 299-W11-49	200W Pump & Treat - Extraction Well Water Sampling	F16-045	ORIGINAL

ICE CHEST NO.	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH	PURCHASE ORDER/CHARGE CODE	METHOD OF SHIPMENT
GLOS-614	HNF-N-491 19	N/A	304235	FEDERAL EXPRESS

SHIPPED TO	OFFSITE PROPERTY NO.	BILL OF LADING/AIR BILL NO.
GEL Laboratories, LLC	9106	7717 2337 1600

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	HCl or H2SO4 to pH <2/Cool <=6C	HNO3 to pH <2	HNO3 to pH <2	None	None
HOLDING TIME	14 Days	6 Months	6 Months	6 Months	6 Months
TYPE OF CONTAINER	aGs*	G/P	G/P	P	G/P
NO. OF CONTAINER(S)	4	1	1	1	4
VOLUME	40mL	500mL	500mL	1L	1L
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	TC99_EIE_LSC: COMMON;	TRITIUM_DIST_LSC: COMMON; C14_LSC: COMMON;	I129LL_SEP_LEPS_GS: COMMON;

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B3HW33	N/A	WATER	MAR 05 2018	0905	✓	✓	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC	MAR 05 2018 1110	Roger Friesz Jr. /CHPRC	MAR 05 2018 1110
Roger Friesz Jr. /CHPRC	MAR 05 2018 1200	Lesly Wall /CHPRC	MAR 05 2018 1200
Lesly Wall /CHPRC	MAR 05 2018 1400	FEDEX	
Fed Ex		C. Tarplin	3/6/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-083
(1) 8260_VOA_GCMS: COMMON {Carbon tetrachloride, Chloroform, Methylene chloride, Trichloroethene, Vinyl chloride}; 8260_VOA_GCMS: CH 01 {Chloromethane}; 8260_VOA_GCMS: COMMON (Add-on) {cis-1,2-Dichloroethylene};
(2) 6020_METALS_ICPMS: COMMON {Aluminum, Cadmium, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Arsenic, Manganese, Nickel, Uranium, Zinc}; 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron};

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/14/2018 FSR ID = FSR57681 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445222			F16-045-1015	PAGE 1 OF 1
COLLECTOR: Tim Calloway /CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT 30 Days	
SAMPLING LOCATION: Valve V03-YE15, 289TC, 299-W14-21	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045	ORIGINAL	
ICE CHEST NO.: GWS-749	FIELD LOGBOOK NO.: HNF-N-491 19	ACTUAL SAMPLE DEPTH: N/A	PURCHASE ORDER/CHARGE CODE: 304235	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9106		BILL OF LADING/AIR BILL NO.: 7717 2337 1974		

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	HCl or H2SO4 to pH <2/Cool <=6C	HNO3 to pH <2	HNO3 to pH <2	None	None
HOLDING TIME	14 Days	6 Months	6 Months	6 Months	6 Months
TYPE OF CONTAINER	aGs*	G/P	G/P	P	G/P
NO. OF CONTAINER(S)	4	1	1	1	4
VOLUME	40mL	500mL	500mL	1L	1L
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	TC99_EIE_LSC: COMMON;	TRITIUM_DIST_LSC: COMMON; C14_LSC: COMMON;	I129LL_SEP_LEPS_GS: COMMON;

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B3HW37	N/A	WATER	MAR 05 2018	0920	✓	✓	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Tim Calloway /CHPRC	MAR 05 2018 1110	Roger Friesz Jr. /CHPRC	MAR 05 2018 1110
Roger Friesz Jr. /CHPRC	MAR 05 2018 1200	Lesly Wall /CHPRC	MAR 05 2018 1200
Lesly Wall /CHPRC	MAR 05 2018 1400	FEDEX	
Fed Ex		C. Thrpin	3/6/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-083
(1) 8260_VOA_GCMS: COMMON {Carbon tetrachloride, Chloroform, Methylene chloride, Trichloroethene, Vinyl chloride}; 8260_VOA_GCMS: CH 01 {Chloromethane}; 8260_VOA_GCMS: COMMON (Add-on) {cis-1,2-Dichloroethylene};
(2) 6020_METALS_ICPMS: COMMON {Aluminum, Cadmium, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Arsenic, Manganese, Nickel, Uranium, Zinc}; 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron};

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/14/2018 FSR ID = FSR57684 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445222 901103			F16-045-1019	PAGE 1 OF 1
COLLECTOR: Tim Calloway /CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC		REQUIRED TAT 30 Days
SAMPLING LOCATION: Valve V03-YE16, 289TC, 299-W11-92	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045		ORIGINAL
ICE CHEST NO.: GWS-683	FIELD LOGBOOK NO.: HNF-N-491 19	ACTUAL SAMPLE DEPTH: N/A	PURCHASE ORDER/CHARGE CODE: 304235		METHOD OF SHIPMENT: FEDERAL EXPRESS
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9106		BILL OF LADING/AIR BILL NO.: 7717 2337 1920		

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	HCl or H2SO4 to pH <2/Cool <=6C	HNO3 to pH <2	HNO3 to pH <2	None	None
HOLDING TIME	14 Days	6 Months	6 Months	6 Months	6 Months
TYPE OF CONTAINER	aGs*	G/P	G/P	P	G/P
NO. OF CONTAINER(S)	4	1	1	1	4
VOLUME	40mL	500mL	500mL	1L	1L
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	TC99_EIE_LSC: COMMON;	TRITIUM_DIST_LSC: COMMON; C14_LSC: COMMON;	I129LL_SEP_LEPS_GS: COMMON;

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B3HW41	N/A	WATER	MAR 05 2018	1050	✓	✓	✓	✓	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME
Tim Calloway /CHPRC	MAR 05 2018 1110
Roger Friesz Jr. /CHPRC	MAR 05 2018 1200
Lesly Wall /CHPRC	MAR 05 2018 1400
Fed Ex	

SIGN/ PRINT NAMES

RECEIVED BY/STORED IN	DATE/TIME
Roger Friesz Jr. /CHPRC	MAR 05 2018 1110
Lesly Wall /CHPRC	MAR 05 2018 1200
FEDEX	
C. Tarplin	3/6/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-083
(1) 8260_VOA_GCMS: COMMON {Carbon tetrachloride, Chloroform, Methylene chloride, Trichloroethene, Vinyl chloride}; 8260_VOA_GCMS: CH 01 {Chloromethane}; 8260_VOA_GCMS: COMMON (Add-on) {cis-1,2-Dichloroethylene};
(2) 6020_METALS_ICPMS: COMMON {Aluminum, Cadmium, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Arsenic, Manganese, Nickel, Uranium, Zinc}; 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron};

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/14/2018 FSR ID = FSR57692 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

APRIL 2, 2018

REV. 0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445222			F16-045-1023	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT 30 Days	
SAMPLING LOCATION: Valve V03-YE03, 289TC, 299-W14-73	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045	ORIGINAL	
ICE CHEST NO.: GWS-614	FIELD LOGBOOK NO.: HNF-N-491 19	ACTUAL SAMPLE DEPTH: N/A	PURCHASE ORDER/CHARGE CODE: 304235	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9106		BILL OF LADING/AIR BILL NO.: 7717 2337 1600		

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	HCl or H2SO4 to pH <2/Cool <=6C	HNO3 to pH <2	HNO3 to pH <2	None	None
HOLDING TIME	14 Days	6 Months	6 Months	6 Months	6 Months
TYPE OF CONTAINER	aGs*	G/P	G/P	P	G/P
NO. OF CONTAINER(S)	4	1	1	1	4
VOLUME	40mL	500mL	500mL	1L	1L
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	TC99_EIE_LSC: COMMON;	TRITIUM_DIST_LSC: COMMON; C14_LSC: COMMON;	I129LL_SEP_LEPS_GS: COMMON;

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B3HW45	N/A	WATER	MAR 05 2018	0855	✓	✓	✓	✓	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC	MAR 05 2018 1110	Roger Friesz Jr. /CHPRC	MAR 05 2018 1110
Roger Friesz Jr. /CHPRC	MAR 05 2018 1200	Lesly Wall /CHPRC	MAR 05 2018 1200
Lesly Wall /CHPRC	MAR 05 2018 1400	FEDEX	
Fed Ex		C. Taylor	3/6/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-083
(1) 8260_VOA_GCMS: COMMON {Carbon tetrachloride, Chloroform, Methylene chloride, Trichloroethene, Vinyl chloride}; 8260_VOA_GCMS: CH 01 {Chloromethane}; 8260_VOA_GCMS: COMMON (Add-on) {cis-1,2-Dichloroethylene};
(2) 6020_METALS_ICPMS: COMMON {Aluminum, Cadmium, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Arsenic, Manganese, Nickel, Uranium, Zinc}; 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron};

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/14/2018 FSR ID = FSR57693 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

APRIL 2, 2018

REV. 0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445222			F16-045-1053	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT 30 Days	
SAMPLING LOCATION: Valve V03-YE13, 289-TC, 299-W11-97	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045	ORIGINAL	
ICE CHEST NO.: GWS-734	FIELD LOGBOOK NO.: HNF-N-491 19	ACTUAL SAMPLE DEPTH: N/A	PURCHASE ORDER/CHARGE CODE: 304235	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9106		BILL OF LADING/AIR BILL NO.: 7717 2337 1816		

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	HCl or H2SO4 to pH <2/Cool <=6C	HNO3 to pH <2	HNO3 to pH <2	None	None
HOLDING TIME	14 Days	6 Months	6 Months	6 Months	6 Months
TYPE OF CONTAINER	aGs*	G/P	G/P	P	G/P
NO. OF CONTAINER(S)	4	1	1	1	4
VOLUME	40mL	500mL	500mL	1L	1L
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	TC99_EIE_LSC: COMMON;	TRITIUM_DIST_LSC: COMMON; C14_LSC: COMMON;	I129LL_SEP_LEPS_GS: COMMON;

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B3HW72	N/A	WATER	MAR 0 5 2018	1200	✓	✓	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC	MAR 0 5 2018 1245	Lesly Wall /CHPRC	MAR 0 5 2018 1245
Lesly Wall /CHPRC	MAR 0 5 2018 1400	FEDEX	
Fed Ex		C. Tarplin	3/6/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-083
(1) 8260_VOA_GCMS: COMMON {Carbon tetrachloride, Chloroform, Methylene chloride, Trichloroethene, Vinyl chloride}; 8260_VOA_GCMS: CH 01 {Chloromethane}; 8260_VOA_GCMS: COMMON (Add-on) {cis-1,2-Dichloroethylene};
(2) 6020_METALS_ICPMS: COMMON {Aluminum, Cadmium, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Arsenic, Manganese, Nickel, Uranium, Zinc}; 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron};

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/14/2018 FSR ID = FSR57665 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

APRIL 2, 2018

REV. 0

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

HS

Client: CPRC	SDG/AR/COC/Work Order: 445222
Received By: Chakeris Tarplin	Date Received: March 06, 2018
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 771723371816 771723371974 771723371920 771723371600

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?		X	Hazard Class Shipped: UN#:
COC/Samples marked or classified as radioactive?	X		Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM mR/Hr Classified as: Rad 1 Rad 2 Rad 3
Is package, COC, and/or Samples marked HAZ?		X	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?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	X			
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	X			Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: 1°C
4	Daily check performed and passed on IR temperature gun?	X			**Temperature Device Serial #:** IR4-17 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	X			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?	X			If Yes, Are Encores or Soil Kits present? Yes___ No X (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes X No___ N/A___ (If unknown, select No) VOA vials free of headspace? Yes___ No X N/A___ Sample ID's and containers affected: B3HW41 1 of 4 w/ headspace
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11	Number of containers received match number indicated on COC?	X			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			X	
13	COC form is properly signed in relinquished/received sections?	X			

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials MEH Date 03/07/18 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: 29−MAR−18

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 analyte was detected in the associated method blank >/= MDC or >5% sample activity.	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 29 March 2018

State	Certification
Alaska	17−018
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	LA180011
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 Radiochem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−18−13
Utah NELAP	SC000122018−26
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Volatile Analysis

Case Narrative

GC/MS Volatile
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL445222
Work Order #: 445222

Product: **Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method: SW846 8260C
Analytical Procedure: GL-OA-E-038 REV# 26
Analytical Batch: 1747154

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

GEL Sample ID#	Client Sample Identification
445222001	B3HW01
445222002	B3HW05
445222006	B3HW13
445222013	B3HW25
445222014	B3HW33
445222015	B3HW37
445222016	B3HW41
445222017	B3HW45
445222018	B3HW72
1203989623	Method Blank (MB)
1203989624	Method Blank (MB)
1203989625	Laboratory Control Sample (LCS)
1203989626	Laboratory Control Sample (LCS)
1203989627	445458001(B3HW93) Post Spike (PS)
1203989628	445458001(B3HW93) Post Spike Duplicate (PSD)
1203992145	Method Blank (MB)
1203992147	Laboratory Control Sample (LCS)

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

Technical Information

Sample Dilutions/Methanol Dilutions
Samples were diluted because target analyte concentrations exceeded the calibration range.

Analyte	445222								
	001	002	006	013	014	015	016	017	018
Carbon tetrachloride	2X	10X	10X	4X	10X	10X	4X	25X	5X

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: GEL445222 GEL Work Order: 445222

The Qualifiers in this report are defined as follows:

D Results are reported from a diluted aliquot of sample.
E Concentration exceeds the calibration range of the instrument
J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated
T Spike and/or spike duplicate sample recovery is outside control limits.
U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

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

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

Signature: Erin Haubert **Name: Erin Haubert**

Date: 29 MAR 2018 **Title: Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Date Collected:**	**03/05/2018 09:56**	**Matrix:**	**WATER**
Lab Sample ID:	**445222001**	**Date Received:**	**03/06/2018 09:00**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HW01**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1747154**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**03/14/2018 14:49**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/14/2018 14:49**				
Data File:	**031418V3\3Z311.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
67-66-3	Chloroform	J	1.44	ug/L	0.300	2.00	5.00
75-09-2	Methylene chloride	U	1.60	ug/L	1.60	5.00	5.00
79-01-6	Trichloroethylene	J	0.320	ug/L	0.300	2.00	5.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	2.00	10.0
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	2.00	10.0
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	2.00	

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Date Collected:**	**03/05/2018 09:56**	**Matrix:**	**WATER**
Lab Sample ID:	**445222001**	**Date Received:**	**03/06/2018 09:00**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HW01DL**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1747154**	**Inst:**	**VOA3.I**	**Dilution:**	**2**
Run Date:	**03/15/2018 14:45**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/15/2018 14:45**				
Data File:	**031518V3\3Z409.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	D	116	ug/L	0.600	4.00	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Date Collected:**	**03/05/2018 10:15**	**Matrix:**	**WATER**
Lab Sample ID:	**445222002**	**Date Received:**	**03/06/2018 09:00**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HW05**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1747154**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**03/14/2018 15:21**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/14/2018 15:21**				
Data File:	**031418V3\3Z312.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
67-66-3	Chloroform		5.70	ug/L	0.300	2.00	5.00
75-09-2	Methylene chloride	U	1.60	ug/L	1.60	5.00	5.00
79-01-6	Trichloroethylene	J	2.39	ug/L	0.300	2.00	5.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	2.00	10.0
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	2.00	10.0
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	2.00	

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Date Collected:**	**03/05/2018 10:15**	**Matrix:**	**WATER**
Lab Sample ID:	**445222002**	**Date Received:**	**03/06/2018 09:00**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HW05DL**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1747154**	**Inst:**	**VOA3.I**	**Dilution:**	**10**
Run Date:	**03/15/2018 15:17**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/15/2018 15:17**				
Data File:	**031518V3\3Z410.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	D	863	ug/L	3.00	20.0	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Date Collected:**	**03/05/2018 11:45**	**Matrix:**	**WATER**
Lab Sample ID:	**445222006**	**Date Received:**	**03/06/2018 09:00**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HW13**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1747154**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**03/14/2018 15:52**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/14/2018 15:52**				
Data File:	**031418V3\3Z313.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
67-66-3	Chloroform		6.81	ug/L	0.300	2.00	5.00
75-09-2	Methylene chloride	U	1.60	ug/L	1.60	5.00	5.00
79-01-6	Trichloroethylene	J	3.50	ug/L	0.300	2.00	5.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	2.00	10.0
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	2.00	10.0
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	2.00	

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Date Collected:**	**03/05/2018 11:45**	**Matrix:**	**WATER**
Lab Sample ID:	**445222006**	**Date Received:**	**03/06/2018 09:00**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HW13DL**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1747154**	**Inst:**	**VOA3.I**	**Dilution:**	**10**
Run Date:	**03/15/2018 15:49**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/15/2018 15:49**				
Data File:	**031518V3\3Z411.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	D	611	ug/L	3.00	20.0	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Date Collected:**	**03/05/2018 09:40**	**Matrix:**	**WATER**
Lab Sample ID:	**445222013**	**Date Received:**	**03/06/2018 09:00**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HW25**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1747154**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**03/14/2018 16:24**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/14/2018 16:24**				
Data File:	**031418V3\3Z314.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
67-66-3	Chloroform	J	4.47	ug/L	0.300	2.00	5.00
75-09-2	Methylene chloride	U	1.60	ug/L	1.60	5.00	5.00
79-01-6	Trichloroethylene	J	0.960	ug/L	0.300	2.00	5.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	2.00	10.0
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	2.00	10.0
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	2.00	

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Date Collected:**	**03/05/2018 09:40**	**Matrix:**	**WATER**
Lab Sample ID:	**445222013**	**Date Received:**	**03/06/2018 09:00**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HW25DL**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1747154**	**Inst:**	**VOA3.I**	**Dilution:**	**4**
Run Date:	**03/15/2018 16:20**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/15/2018 16:20**				
Data File:	**031518V3\3Z412.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	D	238	ug/L	1.20	8.00	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Date Collected:**	**03/05/2018 09:05**	**Matrix:**	**WATER**
Lab Sample ID:	**445222014**	**Date Received:**	**03/06/2018 09:00**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HW33**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1747154**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**03/14/2018 16:56**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/14/2018 16:56**				
Data File:	**031418V3\3Z315.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
67-66-3	Chloroform		7.94	ug/L	0.300	2.00	5.00
75-09-2	Methylene chloride	U	1.60	ug/L	1.60	5.00	5.00
79-01-6	Trichloroethylene		6.31	ug/L	0.300	2.00	5.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	2.00	10.0
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	2.00	10.0
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	2.00	

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Date Collected:**	**03/05/2018 09:05**	**Matrix:**	**WATER**
Lab Sample ID:	**445222014**	**Date Received:**	**03/06/2018 09:00**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HW33DL**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1747154**	**Inst:**	**VOA3.I**	**Dilution:**	**10**
Run Date:	**03/15/2018 16:52**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/15/2018 16:52**				
Data File:	**031518V3\3Z413.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	D	868	ug/L	3.00	20.0	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Date Collected:**	**03/05/2018 09:20**	**Matrix:**	**WATER**
Lab Sample ID:	**445222015**	**Date Received:**	**03/06/2018 09:00**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HW37**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1747154**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**03/14/2018 17:28**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/14/2018 17:28**				
Data File:	**031418V3\3Z316.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
67-66-3	Chloroform		6.85	ug/L	0.300	2.00	5.00
75-09-2	Methylene chloride	U	1.60	ug/L	1.60	5.00	5.00
79-01-6	Trichloroethylene	J	3.73	ug/L	0.300	2.00	5.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	2.00	10.0
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	2.00	10.0
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	2.00	

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Date Collected:**	**03/05/2018 09:20**	**Matrix:**	**WATER**
Lab Sample ID:	**445222015**	**Date Received:**	**03/06/2018 09:00**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HW37DL**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1747154**	**Inst:**	**VOA3.I**	**Dilution:**	**10**
Run Date:	**03/15/2018 17:23**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/15/2018 17:23**				
Data File:	**031518V3\3Z414.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	D	586	ug/L	3.00	20.0	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Date Collected:**	**03/05/2018 10:50**	**Matrix:**	**WATER**
Lab Sample ID:	**445222016**	**Date Received:**	**03/06/2018 09:00**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HW41**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1747154**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**03/14/2018 17:59**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/14/2018 17:59**				
Data File:	**031418V3\3Z317.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
67-66-3	Chloroform	J	2.00	ug/L	0.300	2.00	5.00
75-09-2	Methylene chloride	U	1.60	ug/L	1.60	5.00	5.00
79-01-6	Trichloroethylene	J	0.410	ug/L	0.300	2.00	5.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	2.00	10.0
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	2.00	10.0
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	2.00	

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Date Collected:**	**03/05/2018 10:50**	**Matrix:**	**WATER**
Lab Sample ID:	**445222016**	**Date Received:**	**03/06/2018 09:00**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HW41DL**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1747154**	**Inst:**	**VOA3.I**	**Dilution:**	**4**
Run Date:	**03/15/2018 17:55**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/15/2018 17:55**				
Data File:	**031518V3\3Z415.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	D	222	ug/L	1.20	8.00	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Date Collected:**	**03/05/2018 08:55**	**Matrix:**	**WATER**
Lab Sample ID:	**445222017**	**Date Received:**	**03/06/2018 09:00**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HW45**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1747154**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**03/14/2018 18:31**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/14/2018 18:31**				
Data File:	**031418V3\3Z318.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
67-66-3	Chloroform		8.74	ug/L	0.300	2.00	5.00
75-09-2	Methylene chloride	U	1.60	ug/L	1.60	5.00	5.00
79-01-6	Trichloroethylene		6.76	ug/L	0.300	2.00	5.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	2.00	10.0
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	2.00	10.0
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	2.00	

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Date Collected:**	**03/05/2018 08:55**	**Matrix:**	**WATER**
Lab Sample ID:	**445222017**	**Date Received:**	**03/06/2018 09:00**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HW45DL**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1747154**	**Inst:**	**VOA3.I**	**Dilution:**	**25**
Run Date:	**03/15/2018 18:27**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/15/2018 18:27**				
Data File:	**031518V3\3Z416.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	D	1090	ug/L	7.50	50.0	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Date Collected:**	**03/05/2018 12:00**	**Matrix:**	**WATER**
Lab Sample ID:	**445222018**	**Date Received:**	**03/06/2018 09:00**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HW72**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1747154**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**03/14/2018 19:02**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/14/2018 19:02**				
Data File:	**031418V3\3Z319.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
67-66-3	Chloroform	J	4.64	ug/L	0.300	2.00	5.00
75-09-2	Methylene chloride	U	1.60	ug/L	1.60	5.00	5.00
79-01-6	Trichloroethylene	J	2.28	ug/L	0.300	2.00	5.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	2.00	10.0
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	2.00	10.0
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	2.00	

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Date Collected:**	**03/05/2018 12:00**	**Matrix:**	**WATER**
Lab Sample ID:	**445222018**	**Date Received:**	**03/06/2018 09:00**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HW72DL**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1747154**	**Inst:**	**VOA3.I**	**Dilution:**	**5**
Run Date:	**03/15/2018 18:58**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/15/2018 18:58**				
Data File:	**031518V3\3Z417.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	D	280	ug/L	1.50	10.0	5.00

Quality Control Summary

GEL LABORATORIES LLC

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

QC Summary

Report Date: March 29, 2018

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **445222**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS										
Batch 1747154										
QC1203989625 LCS										
Carbon tetrachloride	50.0			45.4	ug/L		91	(70%-130%)	JP1	03/14/18 12:11
Chloroform	50.0			42.4	ug/L		85	(70%-130%)		
Chloromethane	50.0			45.3	ug/L		91	(70%-130%)		
Methylene chloride	50.0			40.0	ug/L		80	(70%-130%)		
Trichloroethylene	50.0			46.4	ug/L		93	(70%-130%)		
Vinyl chloride	50.0			49.5	ug/L		99	(70%-130%)		
cis-1,2-Dichloroethylene	50.0			45.0	ug/L		90	(70%-130%)		
**1,2-Dichloroethane-d4	50.0			46.9	ug/L		94	(70%-130%)		
**Bromofluorobenzene	50.0			51.6	ug/L		103	(70%-130%)		
**Toluene-d8	50.0			49.1	ug/L		98	(70%-130%)		
QC1203989626 LCS										
Carbon tetrachloride	50.0			40.1	ug/L		80	(70%-130%)		03/15/18 12:39
Chloroform	50.0			40.3	ug/L		81	(70%-130%)		
Chloromethane	50.0			38.6	ug/L		77	(70%-130%)		

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QC Summary

Workorder: **445222**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS										
Batch 1747154										
Methylene chloride	50.0			38.0	ug/L		76	(70%-130%)	JP1	03/15/18 12:39
Trichloroethylene	50.0			40.0	ug/L		80	(70%-130%)		
Vinyl chloride	50.0			41.2	ug/L		82	(70%-130%)		
cis-1,2-Dichloroethylene	50.0			40.7	ug/L		81	(70%-130%)		
**1,2-Dichloroethane-d4	50.0			48.7	ug/L		97	(70%-130%)		
**Bromofluorobenzene	50.0			51.6	ug/L		103	(70%-130%)		
**Toluene-d8	50.0			49.0	ug/L		98	(70%-130%)		
QC1203992147 LCS										
Carbon tetrachloride	50.0			47.3	ug/L		95	(70%-130%)		03/19/18 12:05
Chloroform	50.0			43.9	ug/L		88	(70%-130%)		
Chloromethane	50.0			51.3	ug/L		103	(70%-130%)		
Methylene chloride	50.0			41.9	ug/L		84	(70%-130%)		
Trichloroethylene	50.0			45.8	ug/L		92	(70%-130%)		
Vinyl chloride	50.0			53.8	ug/L		108	(70%-130%)		
cis-1,2-Dichloroethylene	50.0			46.3	ug/L		93	(70%-130%)		
**1,2-Dichloroethane-d4	50.0			55.3	ug/L		111	(70%-130%)		

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QC Summary

Workorder: **445222**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS										
Batch 1747154										
**Bromofluorobenzene	50.0			47.8	ug/L		96	(70%-130%)	JP1	03/19/18 12:05
**Toluene-d8	50.0			49.2	ug/L		98	(70%-130%)		
QC1203989623 MB										
Carbon tetrachloride			U	0.300	ug/L					03/14/18 13:14
Chloroform			U	0.300	ug/L					
Chloromethane			U	0.300	ug/L					
Methylene chloride			U	1.60	ug/L					
Trichloroethylene			U	0.300	ug/L					
Vinyl chloride			U	0.300	ug/L					
cis-1,2-Dichloroethylene			U	0.300	ug/L					
**1,2-Dichloroethane-d4	50.0			49.8	ug/L		100	(70%-130%)		
**Bromofluorobenzene	50.0			52.4	ug/L		105	(70%-130%)		
**Toluene-d8	50.0			50.2	ug/L		100	(70%-130%)		
QC1203989624 MB										
Carbon tetrachloride			U	0.300	ug/L					03/15/18 14:14
Chloroform			U	0.300	ug/L					
Chloromethane			U	0.300	ug/L					

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QC Summary

Workorder: **445222**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1747154											
Methylene chloride			U	1.60	ug/L				JP1	03/15/18	14:14
Trichloroethylene			U	0.300	ug/L						
Vinyl chloride			U	0.300	ug/L						
cis-1,2-Dichloroethylene			U	0.300	ug/L						
**1,2-Dichloroethane-d4	50.0			51.1	ug/L		102	(70%-130%)			
**Bromofluorobenzene	50.0			54.5	ug/L		109	(70%-130%)			
**Toluene-d8	50.0			49.6	ug/L		99	(70%-130%)			
QC1203992145 MB											
Carbon tetrachloride			U	0.300	ug/L					03/19/18	14:12
Chloroform			U	0.300	ug/L						
Chloromethane			U	0.300	ug/L						
Methylene chloride			U	1.60	ug/L						
Trichloroethylene			U	0.300	ug/L						
Vinyl chloride			U	0.300	ug/L						
cis-1,2-Dichloroethylene			U	0.300	ug/L						
**1,2-Dichloroethane-d4	50.0			56.0	ug/L		112	(70%-130%)			

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QC Summary

Workorder: **445222**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS											
Batch 1747154											
**Bromofluorobenzene	50.0				50.4	ug/L		101	(70%-130%)	JP1	03/19/18 14:12
**Toluene-d8	50.0				50.2	ug/L		100	(70%-130%)		
QC1203989627 445458001 PS											
Carbon tetrachloride	50.0	U	0.00		48.5	ug/L		97	(70%-130%)		03/19/18 20:36
Chloroform	50.0	U	0.00		44.7	ug/L		89	(70%-130%)		
Chloromethane	50.0	U	0.00		44.9	ug/L		90	(70%-130%)		
Methylene chloride	50.0	U	0.00		39.6	ug/L		79	(70%-130%)		
Trichloroethylene	50.0	U	0.00		45.0	ug/L		90	(70%-130%)		
Vinyl chloride	50.0	U	0.00		46.8	ug/L		94	(70%-130%)		
cis-1,2-Dichloroethylene	50.0	U	0.00		45.1	ug/L		90	(70%-130%)		
**1,2-Dichloroethane-d4	50.0		53.9		55.2	ug/L		110	(70%-130%)		
**Bromofluorobenzene	50.0		53.4		46.5	ug/L		93	(70%-130%)		
**Toluene-d8	50.0		51.3		50.8	ug/L		102	(70%-130%)		
QC1203989628 445458001 PSD											
Carbon tetrachloride	50.0	U	0.00		47.3	ug/L	3	95	(0%-20%)		03/19/18 21:08
Chloroform	50.0	U	0.00		45.5	ug/L	2	91	(0%-20%)		
Chloromethane	50.0	U	0.00		47.7	ug/L	6	95	(0%-20%)		

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QC Summary

Workorder: **445222**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS											
Batch 1747154											
Methylene chloride	50.0	U	0.00		42.1	ug/L	6	84	(0%-20%)	JP1	03/19/18 21:08
Trichloroethylene	50.0	U	0.00		47.1	ug/L	4	94	(0%-20%)		
Vinyl chloride	50.0	U	0.00		51.6	ug/L	10	103	(0%-20%)		
cis-1,2-Dichloroethylene	50.0	U	0.00		45.5	ug/L	1	91	(0%-20%)		
**1,2-Dichloroethane-d4	50.0		53.9		58.2	ug/L		116	(70%-130%)		
**Bromofluorobenzene	50.0		53.4		48.0	ug/L		96	(70%-130%)		
**Toluene-d8	50.0		51.3		52.6	ug/L		105	(70%-130%)		

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)

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QC Summary

Workorder: **445222**

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.

Volatile

Surrogate Recovery Report

SDG Number: GEL445222

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC		TOL %REC		BFB %REC	
1203989625	LCS for batch 1747154	94		98		103	
1203989623	MB for batch 1747154	100		100		105	
445222001	B3HW01	103		95		106	
445222002	B3HW05	103		98		95	
445222006	B3HW13	108		93		97	
445222013	B3HW25	105		93		105	
445222014	B3HW33	102		96		105	
445222015	B3HW37	105		98		99	
445222016	B3HW41	107		95		103	
445222017	B3HW45	103		98		104	
445222018	B3HW72	108		99		105	
1203989626	LCS for batch 1747154	97		98		103	
1203989624	MB for batch 1747154	102		99		109	
445222001	B3HW01DL	97	D	101	D	105	D
445222002	B3HW05DL	102	D	99	D	105	D
445222006	B3HW13DL	101	D	96	D	98	D
445222013	B3HW25DL	108	D	100	D	103	D
445222014	B3HW33DL	102	D	100	D	103	D
445222015	B3HW37DL	111	D	100	D	103	D
445222016	B3HW41DL	108	D	99	D	104	D
445222017	B3HW45DL	110	D	101	D	101	D
445222018	B3HW72DL	107	D	95	D	98	D
1203992147	LCS for batch 1747154	111		98		96	
1203992145	MB for batch 1747154	112		100		101	

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

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

Volatile

Surrogate Recovery Report

SDG Number: GEL445222

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203989627	B3HW93PS	110	102	93
1203989628	B3HW93PSD	116	105	96

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

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

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL445222
Work Order #: 445222

Product: **Determination of Metals by ICP**
Analytical Method: SW846 3005A/6010D
Analytical Procedure: GL-MA-E-013 REV# 30
Analytical Batch: 1744604

Product: **Determination of Metals by ICP-MS**
Analytical Method: SW846 3005A/6020B
Analytical Procedure: GL-MA-E-014 REV# 32
Analytical Batch: 1744589

Preparation Method: SW846 3005A
Preparation Procedure: GL-MA-E-006 REV# 14
Preparation Batches: 1744588 and 1744603

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

GEL Sample ID#	Client Sample Identification
445222001	B3HW01
445222002	B3HW05
445222006	B3HW13
445222013	B3HW25
445222014	B3HW33
445222015	B3HW37
445222016	B3HW41
445222017	B3HW45
445222018	B3HW72
1203984229	Method Blank (MB)**ICP**
1203984230	Laboratory Control Sample (LCS)
1203984233	445237001(NonSDGL) Serial Dilution (SD)
1203984231	445237001(NonSDGS) Matrix Spike (MS)
1203984232	445237001(NonSDGSD) Matrix Spike Duplicate (MSD)
1203994325	445237001(NonSDGPS) Post Spike (PS)
1203984194	Method Blank (MB)**ICP-MS**
1203984195	Laboratory Control Sample (LCS)
1203984198	445222001(B3HW01L) Serial Dilution (SD)
1203984196	445222001(B3HW01S) Matrix Spike (MS)
1203984197	445222001(B3HW01SD) Matrix Spike Duplicate (MSD)

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

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

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: GEL445222 GEL Work Order: 445222

The Qualifiers in this report are defined as follows:

* Duplicate analysis not within control limits

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

D Results are reported from a diluted aliquot of sample.

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

Review/Validation

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

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

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

Date: 27 MAR 2018 **Title: Data Validator**

Sample Data Summary

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445222 **CONTRACT:** CPRC0F16045 **METHOD TYPE:** SW846

SAMPLE ID: 445222001 **BASIS:** As Received **DATE COLLECTED** 05−MAR−18

CLIENT ID: B3HW01 **LEVEL:** Low **DATE RECEIVED** 06−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/13/18 22:38	180313−2	1744589
7440−38−2	Arsenic	2.62	ug/L	B	2	5	5	1	MS	BAJ	03/13/18 22:38	180313−2	1744589
7440−42−8	Boron	15	ug/L	U	15	50	50	1	P	JWJ	03/21/18 18:50	032118−1	1744604
7440−43−9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 22:38	180313−2	1744589
7440−70−2	Calcium	42000	ug/L		50	200	200	1	P	JWJ	03/21/18 18:50	032118−1	1744604
7440−47−3	Chromium	3.54	ug/L	B	3	10	10	1	MS	BAJ	03/13/18 22:38	180313−2	1744589
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 22:38	180313−2	1744589
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 22:38	180313−2	1744589
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	JWJ	03/21/18 18:50	032118−1	1744604
7439−95−4	Magnesium	14600	ug/L		110	300	300	1	P	JWJ	03/21/18 18:50	032118−1	1744604
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/13/18 22:38	180313−2	1744589
7439−98−7	Molybdenum	2.59	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/13/18 22:38	180313−2	1744589
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/13/18 22:38	180313−2	1744589
7440−09−7	Potassium	4450	ug/L		50	150	150	1	P	JWJ	03/21/18 18:50	032118−1	1744604
7782−49−2	Selenium	2.82	ug/L	B	2	5	5	1	MS	BAJ	03/15/18 17:06	180315−3	1744589
7440−23−5	Sodium	11600	ug/L		100	300	300	1	P	JWJ	03/21/18 18:50	032118−1	1744604
7440−61−1	Uranium	0.753	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/15/18 17:06	180315−3	1744589
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/13/18 22:38	180313−2	1744589

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1744589	1744588	SW846 3005A	50	mL	50	mL	03/06/18	JXM8
1744604	1744603	SW846 3005A	50	mL	50	mL	03/06/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

GEL Laboratories LLC

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445222 **CONTRACT:** CPRC0F16045 **METHOD TYPE:** SW846

SAMPLE ID: 445222002 **BASIS:** As Received **DATE COLLECTED** 05−MAR−18

CLIENT ID: B3HW05 **LEVEL:** Low **DATE RECEIVED** 06−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/13/18 22:51	180313−2	1744589
7440−38−2	Arsenic	2.56	ug/L	B	2	5	5	1	MS	BAJ	03/13/18 22:51	180313−2	1744589
7440−42−8	Boron	15	ug/L	U	15	50	50	1	P	JWJ	03/21/18 18:54	032118−1	1744604
7440−43−9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 22:51	180313−2	1744589
7440−70−2	Calcium	52000	ug/L		50	200	200	1	P	JWJ	03/21/18 18:54	032118−1	1744604
7440−47−3	Chromium	13	ug/L		3	10	10	1	MS	BAJ	03/13/18 22:51	180313−2	1744589
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 22:51	180313−2	1744589
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 22:51	180313−2	1744589
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	JWJ	03/21/18 18:54	032118−1	1744604
7439−95−4	Magnesium	17600	ug/L		110	300	300	1	P	JWJ	03/21/18 18:54	032118−1	1744604
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/13/18 22:51	180313−2	1744589
7439−98−7	Molybdenum	3.32	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/13/18 22:51	180313−2	1744589
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/13/18 22:51	180313−2	1744589
7440−09−7	Potassium	5010	ug/L		50	150	150	1	P	JWJ	03/21/18 18:54	032118−1	1744604
7782−49−2	Selenium	3.7	ug/L	B	2	5	5	1	MS	BAJ	03/15/18 17:15	180315−3	1744589
7440−23−5	Sodium	19800	ug/L		100	300	300	1	P	JWJ	03/21/18 18:54	032118−1	1744604
7440−61−1	Uranium	1.12	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/15/18 17:15	180315−3	1744589
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/13/18 22:51	180313−2	1744589

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1744589	1744588	SW846 3005A	50	mL	50	mL	03/06/18	JXM8
1744604	1744603	SW846 3005A	50	mL	50	mL	03/06/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

GEL Laboratories LLC

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445222 **CONTRACT:** CPRC0F16045 **METHOD TYPE:** SW846

SAMPLE ID: 445222006 **BASIS:** As Received **DATE COLLECTED** 05−MAR−18

CLIENT ID: B3HW13 **LEVEL:** Low **DATE RECEIVED** 06−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/13/18 22:55	180313−2	1744589
7440−38−2	Arsenic	3.53	ug/L	B	2	5	5	1	MS	BAJ	03/13/18 22:55	180313−2	1744589
7440−42−8	Boron	15	ug/L	U	15	50	50	1	P	JWJ	03/21/18 19:03	032118−1	1744604
7440−43−9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 22:55	180313−2	1744589
7440−70−2	Calcium	36000	ug/L		50	200	200	1	P	JWJ	03/21/18 19:03	032118−1	1744604
7440−47−3	Chromium	30	ug/L		3	10	10	1	MS	BAJ	03/13/18 22:55	180313−2	1744589
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 22:55	180313−2	1744589
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 22:55	180313−2	1744589
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	JWJ	03/21/18 19:03	032118−1	1744604
7439−95−4	Magnesium	13700	ug/L		110	300	300	1	P	JWJ	03/21/18 19:03	032118−1	1744604
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/13/18 22:55	180313−2	1744589
7439−98−7	Molybdenum	5.52	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/13/18 22:55	180313−2	1744589
7440−02−0	Nickel	0.794	ug/L	B	0.6	2	2	1	MS	BAJ	03/13/18 22:55	180313−2	1744589
7440−09−7	Potassium	4500	ug/L		50	150	150	1	P	JWJ	03/21/18 19:03	032118−1	1744604
7782−49−2	Selenium	4.06	ug/L	B	2	5	5	1	MS	BAJ	03/15/18 17:45	180315−3	1744589
7440−23−5	Sodium	49600	ug/L		100	300	300	1	P	JWJ	03/21/18 19:03	032118−1	1744604
7440−61−1	Uranium	1.05	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/15/18 17:45	180315−3	1744589
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/13/18 22:55	180313−2	1744589

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1744589	1744588	SW846 3005A	50	mL	50	mL	03/06/18	JXM8
1744604	1744603	SW846 3005A	50	mL	50	mL	03/06/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

GEL Laboratories LLC

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445222 **CONTRACT:** CPRC0F16045 **METHOD TYPE:** SW846

SAMPLE ID: 445222013 **BASIS:** As Received **DATE COLLECTED** 05−MAR−18

CLIENT ID: B3HW25 **LEVEL:** Low **DATE RECEIVED** 06−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/13/18 22:58	180313−2	1744589
7440−38−2	Arsenic	3.1	ug/L	B	2	5	5	1	MS	BAJ	03/13/18 22:58	180313−2	1744589
7440−42−8	Boron	15	ug/L	U	15	50	50	1	P	JWJ	03/21/18 19:07	032118−1	1744604
7440−43−9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 22:58	180313−2	1744589
7440−70−2	Calcium	38700	ug/L		50	200	200	1	P	JWJ	03/21/18 19:07	032118−1	1744604
7440−47−3	Chromium	4.52	ug/L	B	3	10	10	1	MS	BAJ	03/13/18 22:58	180313−2	1744589
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 22:58	180313−2	1744589
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 22:58	180313−2	1744589
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	JWJ	03/21/18 19:07	032118−1	1744604
7439−95−4	Magnesium	13300	ug/L		110	300	300	1	P	JWJ	03/21/18 19:07	032118−1	1744604
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/13/18 22:58	180313−2	1744589
7439−98−7	Molybdenum	4.14	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/13/18 22:58	180313−2	1744589
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/13/18 22:58	180313−2	1744589
7440−09−7	Potassium	4360	ug/L		50	150	150	1	P	JWJ	03/21/18 19:07	032118−1	1744604
7782−49−2	Selenium	2	ug/L	U	2	5	5	1	MS	BAJ	03/15/18 17:19	180315−3	1744589
7440−23−5	Sodium	15100	ug/L		100	300	300	1	P	JWJ	03/21/18 19:07	032118−1	1744604
7440−61−1	Uranium	0.955	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/15/18 17:19	180315−3	1744589
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/13/18 22:58	180313−2	1744589

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1744589	1744588	SW846 3005A	50	mL	50	mL	03/06/18	JXM8
1744604	1744603	SW846 3005A	50	mL	50	mL	03/06/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

GEL Laboratories LLC

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445222 **CONTRACT:** CPRC0F16045 **METHOD TYPE:** SW846

SAMPLE ID: 445222014 **BASIS:** As Received **DATE COLLECTED** 05−MAR−18

CLIENT ID: B3HW33 **LEVEL:** Low **DATE RECEIVED** 06−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/13/18 23:01	180313−2	1744589
7440−38−2	Arsenic	3.01	ug/L	B	2	5	5	1	MS	BAJ	03/13/18 23:01	180313−2	1744589
7440−42−8	Boron	38.6	ug/L	B	15	50	50	1	P	JWJ	03/21/18 19:10	032118−1	1744604
7440−43−9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 23:01	180313−2	1744589
7440−70−2	Calcium	45100	ug/L		50	200	200	1	P	JWJ	03/21/18 19:10	032118−1	1744604
7440−47−3	Chromium	3.8	ug/L	B	3	10	10	1	MS	BAJ	03/13/18 23:01	180313−2	1744589
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 23:01	180313−2	1744589
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 23:01	180313−2	1744589
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	JWJ	03/21/18 19:10	032118−1	1744604
7439−95−4	Magnesium	15500	ug/L		110	300	300	1	P	JWJ	03/21/18 19:10	032118−1	1744604
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/13/18 23:01	180313−2	1744589
7439−98−7	Molybdenum	4.84	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/13/18 23:01	180313−2	1744589
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/13/18 23:01	180313−2	1744589
7440−09−7	Potassium	4330	ug/L		50	150	150	1	P	JWJ	03/21/18 19:10	032118−1	1744604
7782−49−2	Selenium	2	ug/L	U	2	5	5	1	MS	BAJ	03/15/18 17:21	180315−3	1744589
7440−23−5	Sodium	13100	ug/L		100	300	300	1	P	JWJ	03/21/18 19:10	032118−1	1744604
7440−61−1	Uranium	0.790	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/15/18 17:21	180315−3	1744589
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/13/18 23:01	180313−2	1744589

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1744589	1744588	SW846 3005A	50	mL	50	mL	03/06/18	JXM8
1744604	1744603	SW846 3005A	50	mL	50	mL	03/06/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

GEL Laboratories LLC

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445222 **CONTRACT:** CPRC0F16045 **METHOD TYPE:** SW846

SAMPLE ID: 445222015 **BASIS:** As Received **DATE COLLECTED** 05−MAR−18

CLIENT ID: B3HW37 **LEVEL:** Low **DATE RECEIVED** 06−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/13/18 23:11	180313−2	1744589
7440−38−2	Arsenic	3.16	ug/L	B	2	5	5	1	MS	BAJ	03/13/18 23:11	180313−2	1744589
7440−42−8	Boron	310	ug/L		15	50	50	1	P	JWJ	03/21/18 19:14	032118−1	1744604
7440−43−9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 23:11	180313−2	1744589
7440−70−2	Calcium	43200	ug/L		50	200	200	1	P	JWJ	03/21/18 19:14	032118−1	1744604
7440−47−3	Chromium	3	ug/L	U	3	10	10	1	MS	BAJ	03/13/18 23:11	180313−2	1744589
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 23:11	180313−2	1744589
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 23:11	180313−2	1744589
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	JWJ	03/21/18 19:14	032118−1	1744604
7439−95−4	Magnesium	15300	ug/L		110	300	300	1	P	JWJ	03/21/18 19:14	032118−1	1744604
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/13/18 23:11	180313−2	1744589
7439−98−7	Molybdenum	5.4	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/13/18 23:11	180313−2	1744589
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/13/18 23:11	180313−2	1744589
7440−09−7	Potassium	4250	ug/L		50	150	150	1	P	JWJ	03/21/18 19:14	032118−1	1744604
7782−49−2	Selenium	2.6	ug/L	B	2	5	5	1	MS	BAJ	03/15/18 17:28	180315−3	1744589
7440−23−5	Sodium	13100	ug/L		100	300	300	1	P	JWJ	03/21/18 19:14	032118−1	1744604
7440−61−1	Uranium	0.919	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/15/18 17:28	180315−3	1744589
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/13/18 23:11	180313−2	1744589

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1744589	1744588	SW846 3005A	50	mL	50	mL	03/06/18	JXM8
1744604	1744603	SW846 3005A	50	mL	50	mL	03/06/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

GEL Laboratories LLC

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445222 **CONTRACT:** CPRC0F16045 **METHOD TYPE:** SW846

SAMPLE ID: 445222016 **BASIS:** As Received **DATE COLLECTED** 05−MAR−18

CLIENT ID: B3HW41 **LEVEL:** Low **DATE RECEIVED** 06−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/13/18 23:14	180313−2	1744589
7440−38−2	Arsenic	2.75	ug/L	B	2	5	5	1	MS	BAJ	03/13/18 23:14	180313−2	1744589
7440−42−8	Boron	15	ug/L	U	15	50	50	1	P	JWJ	03/21/18 19:17	032118−1	1744604
7440−43−9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 23:14	180313−2	1744589
7440−70−2	Calcium	46700	ug/L		50	200	200	1	P	JWJ	03/21/18 19:17	032118−1	1744604
7440−47−3	Chromium	4.4	ug/L	B	3	10	10	1	MS	BAJ	03/13/18 23:14	180313−2	1744589
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 23:14	180313−2	1744589
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 23:14	180313−2	1744589
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	JWJ	03/21/18 19:17	032118−1	1744604
7439−95−4	Magnesium	15700	ug/L		110	300	300	1	P	JWJ	03/21/18 19:17	032118−1	1744604
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/13/18 23:14	180313−2	1744589
7439−98−7	Molybdenum	3.3	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/13/18 23:14	180313−2	1744589
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/13/18 23:14	180313−2	1744589
7440−09−7	Potassium	4460	ug/L		50	150	150	1	P	JWJ	03/21/18 19:17	032118−1	1744604
7782−49−2	Selenium	2.78	ug/L	B	2	5	5	1	MS	BAJ	03/15/18 17:30	180315−3	1744589
7440−23−5	Sodium	12500	ug/L		100	300	300	1	P	JWJ	03/21/18 19:17	032118−1	1744604
7440−61−1	Uranium	0.956	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/15/18 17:30	180315−3	1744589
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/13/18 23:14	180313−2	1744589

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1744589	1744588	SW846 3005A	50	mL	50	mL	03/06/18	JXM8
1744604	1744603	SW846 3005A	50	mL	50	mL	03/06/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

GEL Laboratories LLC

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445222 **CONTRACT:** CPRC0F16045 **METHOD TYPE:** SW846

SAMPLE ID: 445222017 **BASIS:** As Received **DATE COLLECTED** 05−MAR−18

CLIENT ID: B3HW45 **LEVEL:** Low **DATE RECEIVED** 06−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	230	ug/L		19.3	50	50	1	MS	BAJ	03/13/18 23:18	180313−2	1744589
7440−38−2	Arsenic	2.57	ug/L	B	2	5	5	1	MS	BAJ	03/13/18 23:18	180313−2	1744589
7440−42−8	Boron	30.6	ug/L	B	15	50	50	1	P	JWJ	03/21/18 19:21	032118−1	1744604
7440−43−9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 23:18	180313−2	1744589
7440−70−2	Calcium	65000	ug/L		50	200	200	1	P	JWJ	03/21/18 19:21	032118−1	1744604
7440−47−3	Chromium	11.6	ug/L		3	10	10	1	MS	BAJ	03/13/18 23:18	180313−2	1744589
7440−48−4	Cobalt	0.430	ug/L	B	0.3	1	1	1	MS	BAJ	03/13/18 23:18	180313−2	1744589
7440−50−8	Copper	0.713	ug/L	B	0.3	1	1	1	MS	BAJ	03/13/18 23:18	180313−2	1744589
7439−89−6	Iron	192	ug/L		30	100	100	1	P	JWJ	03/21/18 19:21	032118−1	1744604
7439−95−4	Magnesium	22400	ug/L		110	300	300	1	P	JWJ	03/21/18 19:21	032118−1	1744604
7439−96−5	Manganese	23.8	ug/L		1	5	5	1	MS	BAJ	03/13/18 23:18	180313−2	1744589
7439−98−7	Molybdenum	2.63	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/13/18 23:18	180313−2	1744589
7440−02−0	Nickel	3.67	ug/L		0.6	2	2	1	MS	BAJ	03/13/18 23:18	180313−2	1744589
7440−09−7	Potassium	5280	ug/L		50	150	150	1	P	JWJ	03/21/18 19:21	032118−1	1744604
7782−49−2	Selenium	2	ug/L	U	2	5	5	1	MS	BAJ	03/15/18 17:32	180315−3	1744589
7440−23−5	Sodium	14500	ug/L		100	300	300	1	P	JWJ	03/21/18 19:21	032118−1	1744604
7440−61−1	Uranium	1.01	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/15/18 17:32	180315−3	1744589
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/13/18 23:18	180313−2	1744589

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1744589	1744588	SW846 3005A	50	mL	50	mL	03/06/18	JXM8
1744604	1744603	SW846 3005A	50	mL	50	mL	03/06/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445222 **CONTRACT:** CPRC0F16045 **METHOD TYPE:** SW846

SAMPLE ID: 445222018 **BASIS:** As Received **DATE COLLECTED** 05−MAR−18

CLIENT ID: B3HW72 **LEVEL:** Low **DATE RECEIVED** 06−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/13/18 23:21	180313−2	1744589
7440−38−2	Arsenic	3.3	ug/L	B	2	5	5	1	MS	BAJ	03/13/18 23:21	180313−2	1744589
7440−42−8	Boron	142	ug/L		15	50	50	1	P	JWJ	03/21/18 19:23	032118−1	1744604
7440−43−9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 23:21	180313−2	1744589
7440−70−2	Calcium	55300	ug/L		50	200	200	1	P	JWJ	03/21/18 19:23	032118−1	1744604
7440−47−3	Chromium	3	ug/L	U	3	10	10	1	MS	BAJ	03/13/18 23:21	180313−2	1744589
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 23:21	180313−2	1744589
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 23:21	180313−2	1744589
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	JWJ	03/21/18 19:23	032118−1	1744604
7439−95−4	Magnesium	18800	ug/L		110	300	300	1	P	JWJ	03/21/18 19:23	032118−1	1744604
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/13/18 23:21	180313−2	1744589
7439−98−7	Molybdenum	3.3	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/13/18 23:21	180313−2	1744589
7440−02−0	Nickel	0.642	ug/L	B	0.6	2	2	1	MS	BAJ	03/13/18 23:21	180313−2	1744589
7440−09−7	Potassium	4610	ug/L		50	150	150	1	P	JWJ	03/21/18 19:23	032118−1	1744604
7782−49−2	Selenium	4.53	ug/L	B	2	5	5	1	MS	BAJ	03/15/18 17:35	180315−3	1744589
7440−23−5	Sodium	14300	ug/L		100	300	300	1	P	JWJ	03/21/18 19:23	032118−1	1744604
7440−61−1	Uranium	1.22	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/15/18 17:35	180315−3	1744589
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/13/18 23:21	180313−2	1744589

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1744589	1744588	SW846 3005A	50	mL	50	mL	03/06/18	JXM8
1744604	1744603	SW846 3005A	50	mL	50	mL	03/06/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

Quality Control Summary

GEL LABORATORIES LLC

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

QC Summary

Report Date: March 27, 2018

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **445222**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS										
Batch 1744589										
QC1203984195 LCS										
Aluminum	2000			1880	ug/L		93.8	(80%-120%)	BAJ	03/13/18 22:15
Arsenic	50.0			49.5	ug/L		99	(80%-120%)		
Cadmium	50.0			50.6	ug/L		101	(80%-120%)		
Chromium	50.0			47.4	ug/L		94.8	(80%-120%)		
Cobalt	50.0			50.3	ug/L		101	(80%-120%)		
Copper	50.0			48.6	ug/L		97.2	(80%-120%)		
Manganese	50.0			48.7	ug/L		97.4	(80%-120%)		
Molybdenum	50.0			51.3	ug/L		103	(80%-120%)		
Nickel	50.0			50.1	ug/L		100	(80%-120%)		
Selenium	50.0			54.9	ug/L		110	(80%-120%)		03/15/18 16:50
Uranium	50.0			47.3	ug/L		94.7	(80%-120%)		
Zinc	50.0			49.8	ug/L		99.5	(80%-120%)		03/13/18 22:15
QC1203984194 MB										
Aluminum			U	19.3	ug/L					03/13/18 22:12

GEL LABORATORIES LLC

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

QC Summary

Workorder: **445222**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS											
Batch 1744589											
Arsenic				U	2.00	ug/L				BAJ	03/13/18 22:12
Cadmium				U	0.300	ug/L					
Chromium				U	3.00	ug/L					
Cobalt				U	0.300	ug/L					
Copper				U	0.300	ug/L					
Manganese				U	1.00	ug/L					
Molybdenum				U	0.200	ug/L					
Nickel				U	0.600	ug/L					
Selenium				U	2.00	ug/L					03/15/18 16:48
Uranium				U	0.067	ug/L					
Zinc				U	3.30	ug/L					03/13/18 22:12
QC1203984196 445222001 MS											
Aluminum	2000	U	19.3		1920	ug/L	95.7	(75%-125%)			03/13/18 22:42
Arsenic	50.0	B	2.62		53.5	ug/L	102	(75%-125%)			
Cadmium	50.0	U	0.300		50.9	ug/L	102	(75%-125%)			
Chromium	50.0	B	3.54		51.1	ug/L	95.1	(75%-125%)			

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QC Summary

Workorder: **445222**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS											
Batch 1744589											
Cobalt	50.0	U	0.300		49.2	ug/L		98.3	(75%-125%)	BAJ	03/13/18 22:42
Copper	50.0	U	0.300		47.6	ug/L		95	(75%-125%)		
Manganese	50.0	U	1.00		48.5	ug/L		96.8	(75%-125%)		
Molybdenum	50.0		2.59		56.9	ug/L		109	(75%-125%)		
Nickel	50.0	U	0.600		49.9	ug/L		98.8	(75%-125%)		
Selenium	50.0	B	2.82		58.2	ug/L		111	(75%-125%)		03/15/18 17:08
Uranium	50.0		0.753		51.1	ug/L		101	(75%-125%)		
Zinc	50.0	U	3.30		49.6	ug/L		98.3	(75%-125%)		03/13/18 22:42
QC1203984197 445222001 MSD											
Aluminum	2000	U	19.3		1830	ug/L	4.76	91.3	(0%-20%)		03/13/18 22:45
Arsenic	50.0	B	2.62		52.4	ug/L	1.97	99.6	(0%-20%)		
Cadmium	50.0	U	0.300		50.8	ug/L	0.177	102	(0%-20%)		
Chromium	50.0	B	3.54		49.3	ug/L	3.54	91.5	(0%-20%)		
Cobalt	50.0	U	0.300		47.4	ug/L	3.6	94.8	(0%-20%)		
Copper	50.0	U	0.300		45.0	ug/L	5.44	90	(0%-20%)		
Manganese	50.0	U	1.00		46.0	ug/L	5.24	91.8	(0%-20%)		

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QC Summary

Workorder: **445222**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS											
Batch 1744589											
Molybdenum	50.0		2.59		55.3	ug/L	2.8	105	(0%-20%)	BAJ	03/13/18 22:45
Nickel	50.0	U	0.600		46.6	ug/L	6.8	92.2	(0%-20%)		
Selenium	50.0	B	2.82		55.5	ug/L	4.84	105	(0%-20%)		03/15/18 17:10
Uranium	50.0		0.753		48.9	ug/L	4.45	96.2	(0%-20%)		
Zinc	50.0	U	3.30		48.2	ug/L	2.92	95.4	(0%-20%)		03/13/18 22:45
QC1203984198 445222001 SDILT											
Aluminum		U	2.07	DU	96.5	ug/L	N/A		(0%-20%)		03/13/18 22:48
Arsenic		B	2.62	DU	10.0	ug/L	N/A		(0%-20%)		
Cadmium		U	-0.001	DU	1.50	ug/L	N/A		(0%-20%)		
Chromium		B	3.54	DU	15.0	ug/L	N/A		(0%-20%)		
Cobalt		U	0.029	DU	1.50	ug/L	N/A		(0%-20%)		
Copper		U	0.059	DU	1.50	ug/L	N/A		(0%-20%)		
Manganese		U	0.122	DU	5.00	ug/L	N/A		(0%-20%)		
Molybdenum			2.59	D	0.573	ug/L	10.8		(0%-20%)		
Nickel		U	0.519	DU	3.00	ug/L	N/A		(0%-20%)		
Selenium		B	2.82	DU	10.0	ug/L	N/A		(0%-20%)		03/15/18 17:12

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QC Summary

Workorder: **445222**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS											
Batch 1744589											
Uranium			0.753	BD	0.156	ug/L	3.59		(0%-20%)	BAJ	03/15/18 17:12
Zinc		U	0.520	DU	16.5	ug/L	N/A		(0%-20%)		03/13/18 22:48
Metals Analysis-ICP											
Batch 1744604											
QC1203984230 LCS											
Boron	500				452	ug/L		90.4	(80%-120%)	JWJ	03/21/18 18:35
Calcium	5000				4850	ug/L		96.9	(80%-120%)		
Iron	5000				5000	ug/L		99.9	(80%-120%)		
Magnesium	5000				4930	ug/L		98.5	(80%-120%)		
Potassium	5000				4880	ug/L		97.5	(80%-120%)		
Sodium	5000				4680	ug/L		93.6	(80%-120%)		
QC1203984229 MB											
Boron				U	15.0	ug/L					03/21/18 18:32
Calcium				U	50.0	ug/L					
Iron				U	30.0	ug/L					
Magnesium				U	110	ug/L					
Potassium				U	50.0	ug/L					
Sodium				U	100	ug/L					

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QC Summary

Workorder: **445222**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP											
Batch 1744604											
QC1203984231 445237001 MS											
Boron	500	U	15.0		480	ug/L		95.9	(75%-125%)	JWJ	03/21/18 19:36
Calcium	5000	U	50.0		5130	ug/L		102	(75%-125%)		
Iron	5000	U	30.0		5280	ug/L		105	(75%-125%)		
Magnesium	5000	U	110		5190	ug/L		104	(75%-125%)		
Potassium	5000	U	50.0		5180	ug/L		103	(75%-125%)		
Sodium	5000	U	100		5000	ug/L		98.5	(75%-125%)		
QC1203984232 445237001 MSD											
Boron	500	U	15.0		465	ug/L	3.12	93	(0%-20%)		03/21/18 19:39
Calcium	5000	U	50.0		5100	ug/L	0.444	102	(0%-20%)		
Iron	5000	U	30.0		5260	ug/L	0.456	105	(0%-20%)		
Magnesium	5000	U	110		5180	ug/L	0.112	104	(0%-20%)		
Potassium	5000	U	50.0		5130	ug/L	0.881	102	(0%-20%)		
Sodium	5000	U	100		4900	ug/L	1.88	96.6	(0%-20%)		
QC1203984233 445237001 SDILT											
Boron		U	0.430	DU	75.0	ug/L	N/A		(0%-20%)		03/21/18 19:43
Calcium		U	7.80	DU	250	ug/L	N/A		(0%-20%)		
Iron		U	5.89	DU	150	ug/L	N/A		(0%-20%)		

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QC Summary

Workorder: **445222**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch 1744604											
Magnesium	U	-4.37	DU	550	ug/L	N/A		(0%-20%)	JWJ	03/21/18	19:43
Potassium	U	36.3	DU	250	ug/L	N/A		(0%-20%)			
Sodium	U	72.6	DU	500	ug/L	N/A		(0%-20%)			

Notes:

The Qualifiers in this report are defined as follows:

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

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

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

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL445222
Work Order #: 445222

Product: **Cyanide, Free**
Analytical Method: 9014_CYANIDE
Analytical Procedure: GL-GC-E-073 REV# 8
Analytical Batches: 1743197 and 1744584

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

GEL Sample ID#	Client Sample Identification
445222002	B3HW05
445222003	B3HW08
445222004	B3FP30
445222005	B3HW10
445222006	B3HW13
445222007	B3HW14
445222008	B3FP52
445222009	B3HW16
445222010	B3HW20
445222011	B3FP56
445222012	B3HW22
1203981194	Method Blank (MB)
1203981195	Laboratory Control Sample (LCS)
1203981196	444858001(NonSDG) Sample Duplicate (DUP)
1203985935	445222002(B3HW05) Sample Duplicate (DUP)

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

Additional Comments
Total CN levels above the MDL for Free CN were detected in samples . Free CN was performed per SOP (GL-GC-E-073).

Product: **Cyanide, Amenable to Chlorination**
Analytical Method: 9012_CYANIDE
Analytical Procedure: GL-GC-E-107 REV# 10
Analytical Batches: 1744583, 1744582 and 1744581

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

GEL Sample ID#	Client Sample Identification
445222002	B3HW05
445222003	B3HW08
445222004	B3FP30
445222005	B3HW10
445222006	B3HW13
445222007	B3HW14
445222008	B3FP52
445222009	B3HW16
445222010	B3HW20
445222011	B3FP56
445222012	B3HW22

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: **Cyanide, Total**
Analytical Method: 9012_CYANIDE
Analytical Procedure: GL-GC-E-095 REV# 21
Analytical Batches: 1744580 and 1744579

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

GEL Sample ID#	Client Sample Identification
445222002	B3HW05
445222003	B3HW08
445222004	B3FP30
445222005	B3HW10
445222006	B3HW13
445222007	B3HW14
445222008	B3FP52
445222009	B3HW16
445222010	B3HW20
445222011	B3FP56
445222012	B3HW22
1203984180	Method Blank (MB)
1203984181	Laboratory Control Sample (LCS)
1203984182	445222002(B3HW05) Sample Duplicate (DUP)
1203984184	445222002(B3HW05) Matrix Spike (MS)
1203985068	445222002(B3HW05) Matrix Spike Duplicate (MSD)

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: **Cyanide, Chlorinated**
Analytical Method: 9012_CYANIDE
Analytical Procedure: GL-GC-E-095 REV# 21
Analytical Batches: 1744582 and 1744581

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

GEL Sample ID#	Client Sample Identification
445222002	B3HW05
445222003	B3HW08
445222004	B3FP30
445222005	B3HW10
445222006	B3HW13
445222007	B3HW14
445222008	B3FP52
445222009	B3HW16
445222010	B3HW20
445222011	B3FP56
445222012	B3HW22
1203984186	Method Blank (MB)
1203984187	Laboratory Control Sample (LCS)
1203984188	445222002(B3HW05) Sample Duplicate (DUP)
1203984189	445222003(B3HW08) Sample Duplicate (DUP)

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

Technical Information

Sample Re-analysis
Sample445222007 (B3HW14) was re-analyzed due to instrument failure. The results from the reanalysis are reported.

Certification Statement

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

GEL LABORATORIES LLC

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Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL445222 GEL Work Order: 445222

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: Kristen Mizzell **Name: Kristen Mizzell**

Date: 13 MAR 2018 **Title: Team Leader**

Sample Data Summary

GEL LABORATORIES LLC
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Certificate of Analysis

Report Date: March 13, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-045

Client Sample ID:	B3HW05	Project:	CPRC0F16045
Sample ID:	445222002	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	05-MAR-18 10:15		
Receive Date:	06-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total		27.1	1.67	5.00	ug/L	1.00	1	AXH3	03/08/18	0657	1744580	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide	B	1.02	1.00	2.00	ug/L		1	AXH3	03/09/18	0956	1743197	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination	U	1.67	1.67	5.00	ug/L		1	AXH3	03/08/18	0810	1744583	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/08/18	0650	1744579
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/08/18	0650	1744581

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

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
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Certificate of Analysis

Report Date: March 13, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-045

Client Sample ID:	B3HW08	Project:	CPRC0F16045
Sample ID:	445222003	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	05-MAR-18 10:15		
Receive Date:	06-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total		26.6	1.67	5.00	ug/L	1.00	1	AXH3	03/08/18	0701	1744580	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide	U	1.00	1.00	2.00	ug/L		1	AXH3	03/09/18	0956	1743197	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination	U	1.67	1.67	5.00	ug/L		1	AXH3	03/08/18	0810	1744583	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/08/18	0650	1744579
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/08/18	0650	1744581

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

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: March 13, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-045

Client Sample ID:	B3FP30	Project:	CPRC0F16045
Sample ID:	445222004	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	05-MAR-18 10:15		
Receive Date:	06-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total		26.0	1.67	5.00	ug/L	1.00	1	AXH3	03/08/18	0702	1744580	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide	B	1.46	1.00	2.00	ug/L		1	AXH3	03/09/18	0956	1743197	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination	U	1.67	1.67	5.00	ug/L		1	AXH3	03/08/18	0810	1744583	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/08/18	0650	1744579
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/08/18	0650	1744581

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

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: March 13, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-045

Client Sample ID:	B3HW10	Project:	CPRC0F16045
Sample ID:	445222005	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	05-MAR-18 10:15		
Receive Date:	06-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total		26.5	1.67	5.00	ug/L	1.00	1	AXH3	03/08/18	0704	1744580	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide	U	1.00	1.00	2.00	ug/L		1	AXH3	03/09/18	0956	1743197	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination	U	1.67	1.67	5.00	ug/L		1	AXH3	03/08/18	0810	1744583	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/08/18	0650	1744579
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/08/18	0650	1744581

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

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: March 13, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-045

Client Sample ID:	B3HW13	Project:	CPRC0F16045
Sample ID:	445222006	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	05-MAR-18 11:45		
Receive Date:	06-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total	U	1.67	1.67	5.00	ug/L	1.00	1	AXH3	03/08/18	0709	1744580	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide	U	1.00	1.00	2.00	ug/L		1	AXH3	03/08/18	0934	1744584	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination	U	1.67	1.67	5.00	ug/L		1	AXH3	03/08/18	0810	1744583	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/08/18	0650	1744579
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/08/18	0650	1744581

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

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: March 13, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-045

Client Sample ID:	B3HW14	Project:	CPRC0F16045
Sample ID:	445222007	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	05-MAR-18 11:45		
Receive Date:	06-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total	U	1.67	1.67	5.00	ug/L	1.00	1	AXH3	03/08/18	0710	1744580	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide	U	1.00	1.00	2.00	ug/L		1	AXH3	03/08/18	0934	1744584	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination	U	1.67	1.67	5.00	ug/L		1	AXH3	03/08/18	0810	1744583	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/08/18	0650	1744579
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/08/18	0650	1744581

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

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: March 13, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-045

Client Sample ID:	B3FP52	Project:	CPRC0F16045
Sample ID:	445222008	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	05-MAR-18 11:45		
Receive Date:	06-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total	U	1.67	1.67	5.00	ug/L	1.00	1	AXH3	03/08/18	0711	1744580	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide	U	1.00	1.00	2.00	ug/L		1	AXH3	03/08/18	0934	1744584	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination	U	1.67	1.67	5.00	ug/L		1	AXH3	03/08/18	0810	1744583	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/08/18	0650	1744579
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/08/18	0650	1744581

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

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: March 13, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-045

Client Sample ID:	B3HW16	Project:	CPRC0F16045
Sample ID:	445222009	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	05-MAR-18 11:45		
Receive Date:	06-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total	U	1.67	1.67	5.00	ug/L	1.00	1	AXH3	03/08/18	0712	1744580	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide	U	1.00	1.00	2.00	ug/L		1	AXH3	03/08/18	0934	1744584	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination	U	1.67	1.67	5.00	ug/L		1	AXH3	03/08/18	0810	1744583	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/08/18	0650	1744579
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/08/18	0650	1744581

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

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: March 13, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-045

Client Sample ID:	B3HW20	Project:	CPRC0F16045
Sample ID:	445222010	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	05-MAR-18 12:15		
Receive Date:	06-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total	U	1.67	1.67	5.00	ug/L	1.00	1	AXH3	03/08/18	0713	1744580	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide	U	1.00	1.00	2.00	ug/L		1	AXH3	03/08/18	0934	1744584	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination	U	1.67	1.67	5.00	ug/L		1	AXH3	03/08/18	0810	1744583	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/08/18	0650	1744579
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/08/18	0650	1744581

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

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: March 13, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-045

Client Sample ID:	B3FP56	Project:	CPRC0F16045
Sample ID:	445222011	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	05-MAR-18 12:15		
Receive Date:	06-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total	U	1.67	1.67	5.00	ug/L	1.00	1	AXH3	03/08/18	0714	1744580	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide	U	1.00	1.00	2.00	ug/L		1	AXH3	03/08/18	0934	1744584	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination	U	1.67	1.67	5.00	ug/L		1	AXH3	03/08/18	0810	1744583	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/08/18	0650	1744579
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/08/18	0650	1744581

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

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: March 13, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-045

Client Sample ID:	B3HW22	Project:	CPRC0F16045
Sample ID:	445222012	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	05-MAR-18 12:15		
Receive Date:	06-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total	U	1.67	1.67	5.00	ug/L	1.00	1	AXH3	03/08/18	0715	1744580	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide	U	1.00	1.00	2.00	ug/L		1	AXH3	03/08/18	0934	1744584	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination	U	1.67	1.67	5.00	ug/L		1	AXH3	03/08/18	0810	1744583	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/08/18	0650	1744579
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/08/18	0650	1744581

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

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

Quality Control Summary

GEL LABORATORIES LLC

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

QC Summary

Report Date: March 13, 2018

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **445222**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Flow Injection Analysis										
Batch 1743197										
QC1203981196 444858001 DUP										
Free Cyanide	B	1.91	B	1.46	ug/L	26.5 ^		(+/-2.00)	AXH3	03/09/18 09:56
QC1203985935 445222002 DUP										
Free Cyanide	B	1.02	U	1.00	ug/L	56.5 ^		(+/-2.00)		03/09/18 09:56
QC1203981195 LCS										
Free Cyanide	25.0			24.5	ug/L		98	(80%-120%)		03/09/18 09:56
QC1203981194 MB										
Free Cyanide			U	1.00	ug/L					03/09/18 09:56
Batch 1744580										
QC1203984182 445222002 DUP										
Cyanide, Total		27.1		26.2	ug/L	3.38		(0%-20%)	AXH3	03/08/18 06:58
QC1203984181 LCS										
Cyanide, Total	50.0			48.3	ug/L		96.6	(80%-120%)		03/08/18 06:55
QC1203984180 MB										
Cyanide, Total			U	1.67	ug/L					03/08/18 06:54
QC1203984184 445222002 MS										
Cyanide, Total	100	27.1		129	ug/L		102	(75%-125%)		03/08/18 06:59
QC1203985068 445222002 MSD										
Cyanide, Total	100	27.1		129	ug/L	0	102	(0%-20%)		03/08/18 07:00

GEL LABORATORIES LLC

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QC Summary

Workorder: **445222**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Flow Injection Analysis										
Batch 1744582										
QC1203984188 445222002 DUP										
Cyanide, Chlorinated		26.6		26.5	ug/L	0.377		(0%-20%)	AXH3	03/08/18 07:38
QC1203984189 445222003 DUP										
Cyanide, Chlorinated		26.5		26.7	ug/L	0.752		(0%-20%)		03/08/18 07:40
QC1203984187 LCS										
Cyanide, Chlorinated	50.0		U	1.67	ug/L		0	(-200%-200%)		03/08/18 07:32
QC1203984186 MB										
Cyanide, Chlorinated			U	1.67	ug/L					03/08/18 07:31

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

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 #: GEL445222
Work Order #: 445222

Product: **I129LL_SEP_LEPS_GS: COMMON (low level)**
Analytical Method: DOE EML HASL-300,I-01 Modified
Analytical Procedure: GL-RAD-A-006 REV# 21
Analytical Batch: 1743967

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

GEL Sample ID#	Client Sample Identification
445222001	B3HW01
445222002	B3HW05
445222006	B3HW13
445222013	B3HW25
445222014	B3HW33
445222015	B3HW37
445222016	B3HW41
445222017	B3HW45
445222018	B3HW72
1203982773	Method Blank (MB)
1203982774	444994001(B3HVY6) Sample Duplicate (DUP)
1203982775	444994001(B3HVY6) Matrix Spike (MS)
1203982776	Laboratory Control Sample (LCS)

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.

Qualifier Information

Qualifier	Reason	Analyte	Sample	Client Sample
X	Results are considered a false positive due to no valid peak.	Iodine-129	445222015	B3HW37

Product: **C14_LSC: COMMON**
Analytical Method: C14_LSC
Analytical Procedure: GL-RAD-A-003 REV# 15
Analytical Batch: 1744685

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

GEL Sample ID#	Client Sample Identification
445222001	B3HW01
445222002	B3HW05
445222006	B3HW13
445222013	B3HW25
445222014	B3HW33
445222015	B3HW37
445222016	B3HW41
445222017	B3HW45
445222018	B3HW72
1203984384	Method Blank (MB)
1203984385	445222001(B3HW01) Sample Duplicate (DUP)
1203984386	445222001(B3HW01) Matrix Spike (MS)
1203984387	Laboratory Control Sample (LCS)

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

Technical Information

Recounts
Sample 445222016 (B3HW41) was recounted due to results more negative than the three sigma TPU. The second count is reported.

Miscellaneous Information

Additional Comments
The matrix spike, 1203984386 (B3HW01MS), aliquot was reduced to conserve sample volume.

Product: **TRITIUM_DIST_LSC: COMMON**
Analytical Method: TRITIUM_DIST_LSC
Analytical Procedure: GL-RAD-A-002 REV# 22
Analytical Batch: 1744692

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

GEL Sample ID#	Client Sample Identification
445222001	B3HW01
445222002	B3HW05
445222006	B3HW13
445222013	B3HW25
445222014	B3HW33
445222015	B3HW37
445222016	B3HW41
445222017	B3HW45

445222018	B3HW72
1203984403	Method Blank (MB)
1203984404	445222001(B3HW01) Sample Duplicate (DUP)
1203984405	445222001(B3HW01) Matrix Spike (MS)
1203984406	Laboratory Control Sample (LCS)

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

Technical Information

Recounts
Samples 1203984405 (B3HW01MS) and 1203984406 (LCS) were recounted due to low recovery. The recounts are reported. Samples 1203984404 (B3HW01DUP), 445222001 (B3HW01), 445222002 (B3HW05), 445222006 (B3HW13), 445222013 (B3HW25), 445222015 (B3HW37), 445222016 (B3HW41) and 445222017 (B3HW45) were recounted due to high MDCs. The recounts are reported. Samples 1203984403 (MB), 445222014 (B3HW33) and 445222018 (B3HW72) were recounted due to high MDCs and then recounted due to results more negative than the three sigma TPU. The third counts are reported.

Miscellaneous Information

Additional Comments
The matrix spike, 1203984405 (B3HW01MS), aliquot was reduced to conserve sample volume.

Product: **TC99_EIE_LSC: COMMON**
Analytical Method: TC99_EIE_LSC
Analytical Procedure: GL-RAD-A-059 REV# 5
Analytical Batch: 1745594

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

GEL Sample ID#	Client Sample Identification
445222001	B3HW01
445222002	B3HW05
445222006	B3HW13
445222013	B3HW25
445222014	B3HW33
445222015	B3HW37
445222016	B3HW41
445222017	B3HW45
445222018	B3HW72
1203986367	Method Blank (MB)
1203986368	445222001(B3HW01) Sample Duplicate (DUP)
1203986369	Laboratory Control Sample (LCS)

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

Technical Information

Recounts
Samples 1203986368 (B3HW01DUP), 445222001 (B3HW01), 445222002 (B3HW05), 445222006 (B3HW13), 445222013 (B3HW25), 445222014 (B3HW33), 445222016 (B3HW41) and 445222017 (B3HW45) were recounted to verify sample results. Recounts are reported.

Certification Statement

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

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Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL445222 GEL Work Order: 445222

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 M. McCarty **Name: Heather McCarty**

Date: 29 MAR 2018 **Title: Analyst II**

Sample Data Summary

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222001**	**Date Collected:**	**03/05/2018 09:56**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW01**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743967**	**Method:**	**DOE EML HASL-300,I-01 Mo**	**SOP Ref:**	**GL-RAD-A-006**
Run Date:	**03/09/2018 06:09**	**Analyst:**	**BSW1**	**Instrument:**	**GAM05**
Data File:	**I445222001.CNF;2**	**Aliquot:**	**1.2 L**	**Count Time:**	**240 min**
Prep Batch:	**1743967**	**Prep Method:**	**DOE EML HASL-300,I-01 M**		
Prep Date:	**03/07/2018 10:17**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.0454	pCi/L	+/-0.318	0.319	0.514	1.00

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:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222001**	**Date Collected:**	**03/05/2018 09:56**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW01**			**Prep Basis:**	**"As Received"**
Batch ID:	**1744685**	**Method:**	**C14_LSC**	**SOP Ref:**	**GL-RAD-A-003**
Run Date:	**03/09/2018 18:09**	**Analyst:**	**BXM4**	**Instrument:**	**LSCYELLOW**
Data File:	**C1744685R.xls**	**Aliquot:**	**100.95 mL**	**Count Time:**	**15 min**
Prep Batch:	**1744685**	**Prep Method:**	**EPA EERF C-01 Modified**		
Prep Date:	**03/08/2018 14:02**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	1.89	pCi/L	+/-16.5	16.5	28.8	50.0

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:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222001**	**Date Collected:**	**03/05/2018 09:56**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW01**			**Prep Basis:**	**"As Received"**
Batch ID:	**1744692**	**Method:**	**TRITIUM_DIST_LSC**	**SOP Ref:**	**GL-RAD-A-002**
Run Date:	**03/10/2018 15:32**	**Analyst:**	**MXH8**	**Instrument:**	**LSCGREEN**
Data File:	**T1744692R2.xls**	**Aliquot:**	**50 mL**	**Count Time:**	**50 min**
Prep Batch:	**1744692**	**Prep Method:**	**EPA 906.0 Modified**		
Prep Date:	**03/08/2018 07:12**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-181	pCi/L	+/-183	183	331	400

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222001**	**Date Collected:**	**03/05/2018 09:56**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW01**			**Prep Basis:**	**"As Received"**
Batch ID:	**1745594**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/28/2018 18:22**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCBLUE**
Data File:	**E1745594R.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**15 min**
Prep Batch:	**1745594**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/23/2018 12:06**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		43.1	pCi/L	+/-24.3	24.7	39.2	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	34500	35600	CPM	96.8	(30%-105%)

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).
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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222002**	**Date Collected:**	**03/05/2018 10:15**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW05**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743967**	**Method:**	**DOE EML HASL-300,I-01 Mo**	**SOP Ref:**	**GL-RAD-A-006**
Run Date:	**03/09/2018 06:09**	**Analyst:**	**BSW1**	**Instrument:**	**GAM21**
Data File:	**I445222002.CNF;1**	**Aliquot:**	**1.2 L**	**Count Time:**	**120 min**
Prep Batch:	**1743967**	**Prep Method:**	**DOE EML HASL-300,I-01 M**		
Prep Date:	**03/07/2018 10:17**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	0.124	pCi/L	+/-0.365	0.370	0.680	1.00

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222002**	**Date Collected:**	**03/05/2018 10:15**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW05**			**Prep Basis:**	**"As Received"**
Batch ID:	**1744685**	**Method:**	**C14_LSC**	**SOP Ref:**	**GL-RAD-A-003**
Run Date:	**03/09/2018 18:26**	**Analyst:**	**BXM4**	**Instrument:**	**LSCYELLOW**
Data File:	**C1744685R.xls**	**Aliquot:**	**100.38 mL**	**Count Time:**	**15 min**
Prep Batch:	**1744685**	**Prep Method:**	**EPA EERF C-01 Modified**		
Prep Date:	**03/08/2018 14:02**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-7.83	pCi/L	+/-16.3	16.3	29.3	50.0

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222002**	**Date Collected:**	**03/05/2018 10:15**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW05**			**Prep Basis:**	**"As Received"**
Batch ID:	**1744692**	**Method:**	**TRITIUM_DIST_LSC**	**SOP Ref:**	**GL-RAD-A-002**
Run Date:	**03/10/2018 16:24**	**Analyst:**	**MXH8**	**Instrument:**	**LSCGREEN**
Data File:	**T1744692R2.xls**	**Aliquot:**	**50 mL**	**Count Time:**	**50 min**
Prep Batch:	**1744692**	**Prep Method:**	**EPA 906.0 Modified**		
Prep Date:	**03/08/2018 07:12**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		1380	pCi/L	+/-242	360	335	400

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222002**	**Date Collected:**	**03/05/2018 10:15**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW05**			**Prep Basis:**	**"As Received"**
Batch ID:	**1745594**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/28/2018 18:39**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCBLUE**
Data File:	**E1745594R.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**15 min**
Prep Batch:	**1745594**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/23/2018 12:06**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		1150	pCi/L	+/-53.9	138	39.5	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	34000	35600	CPM	95.5	(30%-105%)

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222006**	**Date Collected:**	**03/05/2018 11:45**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW13**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743967**	**Method:**	**DOE EML HASL-300,I-01 Mo**	**SOP Ref:**	**GL-RAD-A-006**
Run Date:	**03/09/2018 06:09**	**Analyst:**	**BSW1**	**Instrument:**	**XRAY1**
Data File:	**I445222006.CNF;1**	**Aliquot:**	**1.2 L**	**Count Time:**	**120 min**
Prep Batch:	**1743967**	**Prep Method:**	**DOE EML HASL-300,I-01 M**		
Prep Date:	**03/07/2018 10:17**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	0.187	pCi/L	+/-0.402	0.412	0.761	1.00

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222006**	**Date Collected:**	**03/05/2018 11:45**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW13**			**Prep Basis:**	**"As Received"**
Batch ID:	**1744685**	**Method:**	**C14_LSC**	**SOP Ref:**	**GL-RAD-A-003**
Run Date:	**03/09/2018 18:42**	**Analyst:**	**BXM4**	**Instrument:**	**LSCYELLOW**
Data File:	**C1744685R.xls**	**Aliquot:**	**100.58 mL**	**Count Time:**	**15 min**
Prep Batch:	**1744685**	**Prep Method:**	**EPA EERF C-01 Modified**		
Prep Date:	**03/08/2018 14:02**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-15.3	pCi/L	+/-15.8	15.8	29.2	50.0

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222006**	**Date Collected:**	**03/05/2018 11:45**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW13**			**Prep Basis:**	**"As Received"**
Batch ID:	**1744692**	**Method:**	**TRITIUM_DIST_LSC**	**SOP Ref:**	**GL-RAD-A-002**
Run Date:	**03/10/2018 17:16**	**Analyst:**	**MXH8**	**Instrument:**	**LSCGREEN**
Data File:	**T1744692R2.xls**	**Aliquot:**	**50 mL**	**Count Time:**	**50 min**
Prep Batch:	**1744692**	**Prep Method:**	**EPA 906.0 Modified**		
Prep Date:	**03/08/2018 07:12**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		1460	pCi/L	+/-250	377	343	400

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222006**	**Date Collected:**	**03/05/2018 11:45**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW13**			**Prep Basis:**	**"As Received"**
Batch ID:	**1745594**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/28/2018 18:56**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCBLUE**
Data File:	**E1745594R.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**15 min**
Prep Batch:	**1745594**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/23/2018 12:06**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		1020	pCi/L	+/-51.9	124	40.2	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	33600	35600	CPM	94.3	(30%-105%)

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).
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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222013**	**Date Collected:**	**03/05/2018 09:40**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW25**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743967**	**Method:**	**DOE EML HASL-300,I-01 Mo**	**SOP Ref:**	**GL-RAD-A-006**
Run Date:	**03/09/2018 06:10**	**Analyst:**	**BSW1**	**Instrument:**	**XRAY2**
Data File:	**I445222013.CNF;1**	**Aliquot:**	**1.2 L**	**Count Time:**	**120 min**
Prep Batch:	**1743967**	**Prep Method:**	**DOE EML HASL-300,I-01 M**		
Prep Date:	**03/07/2018 10:17**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.189	pCi/L	+/-0.377	0.387	0.671	1.00

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222013**	**Date Collected:**	**03/05/2018 09:40**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW25**			**Prep Basis:**	**"As Received"**
Batch ID:	**1744685**	**Method:**	**C14_LSC**	**SOP Ref:**	**GL-RAD-A-003**
Run Date:	**03/09/2018 18:58**	**Analyst:**	**BXM4**	**Instrument:**	**LSCYELLOW**
Data File:	**C1744685R.xls**	**Aliquot:**	**100.27 mL**	**Count Time:**	**15 min**
Prep Batch:	**1744685**	**Prep Method:**	**EPA EERF C-01 Modified**		
Prep Date:	**03/08/2018 14:02**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-5.59	pCi/L	+/-16.8	16.8	29.9	50.0

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:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222013**	**Date Collected:**	**03/05/2018 09:40**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW25**			**Prep Basis:**	**"As Received"**
Batch ID:	**1744692**	**Method:**	**TRITIUM_DIST_LSC**	**SOP Ref:**	**GL-RAD-A-002**
Run Date:	**03/10/2018 18:08**	**Analyst:**	**MXH8**	**Instrument:**	**LSCGREEN**
Data File:	**T1744692R2.xls**	**Aliquot:**	**50 mL**	**Count Time:**	**50 min**
Prep Batch:	**1744692**	**Prep Method:**	**EPA 906.0 Modified**		
Prep Date:	**03/08/2018 07:12**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-236	pCi/L	+/-178	178	327	400

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222013**	**Date Collected:**	**03/05/2018 09:40**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW25**			**Prep Basis:**	**"As Received"**
Batch ID:	**1745594**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/28/2018 19:15**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCBLUE**
Data File:	**E1745594R.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**15 min**
Prep Batch:	**1745594**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/23/2018 12:06**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		266	pCi/L	+/-32.9	44.2	40.1	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	33700	35600	CPM	94.5	(30%-105%)

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222014**	**Date Collected:**	**03/05/2018 09:05**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW33**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743967**	**Method:**	**DOE EML HASL-300,I-01 Mo**	**SOP Ref:**	**GL-RAD-A-006**
Run Date:	**03/09/2018 06:10**	**Analyst:**	**BSW1**	**Instrument:**	**XRAY4**
Data File:	**I445222014.CNF;1**	**Aliquot:**	**1.2 L**	**Count Time:**	**120 min**
Prep Batch:	**1743967**	**Prep Method:**	**DOE EML HASL-300,I-01 M**		
Prep Date:	**03/07/2018 10:17**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.202	pCi/L	+/-0.405	0.416	0.698	1.00

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:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222014**	**Date Collected:**	**03/05/2018 09:05**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW33**			**Prep Basis:**	**"As Received"**
Batch ID:	**1744685**	**Method:**	**C14_LSC**	**SOP Ref:**	**GL-RAD-A-003**
Run Date:	**03/09/2018 19:14**	**Analyst:**	**BXM4**	**Instrument:**	**LSCYELLOW**
Data File:	**C1744685R.xls**	**Aliquot:**	**100.73 mL**	**Count Time:**	**15 min**
Prep Batch:	**1744685**	**Prep Method:**	**EPA EERF C-01 Modified**		
Prep Date:	**03/08/2018 14:02**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-19.1	pCi/L	+/-15.6	15.6	29.1	50.0

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:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222014**	**Date Collected:**	**03/05/2018 09:05**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW33**			**Prep Basis:**	**"As Received"**
Batch ID:	**1744692**	**Method:**	**TRITIUM_DIST_LSC**	**SOP Ref:**	**GL-RAD-A-002**
Run Date:	**03/12/2018 09:40**	**Analyst:**	**MXH8**	**Instrument:**	**LSCMOCHA**
Data File:	**T1744692R2.xls**	**Aliquot:**	**50 mL**	**Count Time:**	**50 min**
Prep Batch:	**1744692**	**Prep Method:**	**EPA 906.0 Modified**		
Prep Date:	**03/08/2018 07:12**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	85.7	pCi/L	+/-151	152	258	400

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).
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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222014**	**Date Collected:**	**03/05/2018 09:05**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW33**			**Prep Basis:**	**"As Received"**
Batch ID:	**1745594**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/28/2018 19:32**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCBLUE**
Data File:	**E1745594R.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**15 min**
Prep Batch:	**1745594**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/23/2018 12:06**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		123	pCi/L	+/-27.8	31.0	39.8	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	33800	35600	CPM	94.8	(30%-105%)

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).
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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222015**	**Date Collected:**	**03/05/2018 09:20**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW37**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743967**	**Method:**	**DOE EML HASL-300,I-01 Mo**	**SOP Ref:**	**GL-RAD-A-006**
Run Date:	**03/09/2018 06:10**	**Analyst:**	**BSW1**	**Instrument:**	**XRAY6**
Data File:	**I445222015.CNF;1**	**Aliquot:**	**1.2 L**	**Count Time:**	**120 min**
Prep Batch:	**1743967**	**Prep Method:**	**DOE EML HASL-300,I-01 M**		
Prep Date:	**03/07/2018 10:17**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	X	0.510	pCi/L	+/-0.333	0.337	0.155	1.00

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).

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222015**	**Date Collected:**	**03/05/2018 09:20**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW37**			**Prep Basis:**	**"As Received"**
Batch ID:	**1744685**	**Method:**	**C14_LSC**	**SOP Ref:**	**GL-RAD-A-003**
Run Date:	**03/09/2018 19:31**	**Analyst:**	**BXM4**	**Instrument:**	**LSCYELLOW**
Data File:	**C1744685R.xls**	**Aliquot:**	**100.32 mL**	**Count Time:**	**15 min**
Prep Batch:	**1744685**	**Prep Method:**	**EPA EERF C-01 Modified**		
Prep Date:	**03/08/2018 14:02**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	0.677	pCi/L	+/-16.6	16.6	29.1	50.0

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222015**	**Date Collected:**	**03/05/2018 09:20**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW37**			**Prep Basis:**	**"As Received"**
Batch ID:	**1744692**	**Method:**	**TRITIUM_DIST_LSC**	**SOP Ref:**	**GL-RAD-A-002**
Run Date:	**03/10/2018 19:52**	**Analyst:**	**MXH8**	**Instrument:**	**LSCGREEN**
Data File:	**T1744692R2.xls**	**Aliquot:**	**50 mL**	**Count Time:**	**50 min**
Prep Batch:	**1744692**	**Prep Method:**	**EPA 906.0 Modified**		
Prep Date:	**03/08/2018 07:12**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-262	pCi/L	+/-178	178	330	400

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222015**	**Date Collected:**	**03/05/2018 09:20**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW37**			**Prep Basis:**	**"As Received"**
Batch ID:	**1745594**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/27/2018 19:40**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCBLUE**
Data File:	**E1745594.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**15 min**
Prep Batch:	**1745594**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/23/2018 12:06**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	22.7	pCi/L	+/-23.5	23.6	39.3	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	33600	35600	CPM	94.2	(30%-105%)

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.

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445222	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	445222016	**Date Collected:**	03/05/2018 10:50	**Matrix:**	WATER
		Date Received:	03/06/2018 09:00		
Client ID:	B3HW41			**Prep Basis:**	"As Received"
Batch ID:	1743967	**Method:**	DOE EML HASL-300,I-01 Mo	**SOP Ref:**	GL-RAD-A-006
Run Date:	03/09/2018 06:16	**Analyst:**	BSW1	**Instrument:**	XRAY5
Data File:	I445222016.CNF;1	**Aliquot:**	1.2 L	**Count Time:**	120 min
Prep Batch:	1743967	**Prep Method:**	DOE EML HASL-300,I-01 M		
Prep Date:	03/07/2018 10:17				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.0466	pCi/L	+/-0.477	0.477	0.897	1.00

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222016**	**Date Collected:**	**03/05/2018 10:50**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW41**			**Prep Basis:**	**"As Received"**
Batch ID:	**1744685**	**Method:**	**C14_LSC**	**SOP Ref:**	**GL-RAD-A-003**
Run Date:	**03/11/2018 08:35**	**Analyst:**	**BXM4**	**Instrument:**	**LSCYELLOW**
Data File:	**C1744685R.xls**	**Aliquot:**	**100.39 mL**	**Count Time:**	**15 min**
Prep Batch:	**1744685**	**Prep Method:**	**EPA EERF C-01 Modified**		
Prep Date:	**03/08/2018 14:02**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-5.56	pCi/L	+/-15.5	15.5	27.9	50.0

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222016**	**Date Collected:**	**03/05/2018 10:50**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW41**			**Prep Basis:**	**"As Received"**
Batch ID:	**1744692**	**Method:**	**TRITIUM_DIST_LSC**	**SOP Ref:**	**GL-RAD-A-002**
Run Date:	**03/10/2018 20:44**	**Analyst:**	**MXH8**	**Instrument:**	**LSCGREEN**
Data File:	**T1744692R2.xls**	**Aliquot:**	**50 mL**	**Count Time:**	**50 min**
Prep Batch:	**1744692**	**Prep Method:**	**EPA 906.0 Modified**		
Prep Date:	**03/08/2018 07:12**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-99.6	pCi/L	+/-182	182	325	400

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222016**	**Date Collected:**	**03/05/2018 10:50**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW41**			**Prep Basis:**	**"As Received"**
Batch ID:	**1745594**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/28/2018 19:49**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCBLUE**
Data File:	**E1745594R.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**15 min**
Prep Batch:	**1745594**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/23/2018 12:06**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		42.4	pCi/L	+/-23.6	24.1	38.0	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	35500	35600	CPM	99.6	(30%-105%)

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222017**	**Date Collected:**	**03/05/2018 08:55**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW45**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743967**	**Method:**	**DOE EML HASL-300,I-01 Mo**	**SOP Ref:**	**GL-RAD-A-006**
Run Date:	**03/09/2018 08:18**	**Analyst:**	**BSW1**	**Instrument:**	**GAM21**
Data File:	**I445222017.CNF;1**	**Aliquot:**	**1.2 L**	**Count Time:**	**120 min**
Prep Batch:	**1743967**	**Prep Method:**	**DOE EML HASL-300,I-01 M**		
Prep Date:	**03/07/2018 10:17**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	0.0212	pCi/L	+/-0.345	0.345	0.625	1.00

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222017**	**Date Collected:**	**03/05/2018 08:55**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW45**			**Prep Basis:**	**"As Received"**
Batch ID:	**1744685**	**Method:**	**C14_LSC**	**SOP Ref:**	**GL-RAD-A-003**
Run Date:	**03/09/2018 20:03**	**Analyst:**	**BXM4**	**Instrument:**	**LSCYELLOW**
Data File:	**C1744685R.xls**	**Aliquot:**	**100.73 mL**	**Count Time:**	**15 min**
Prep Batch:	**1744685**	**Prep Method:**	**EPA EERF C-01 Modified**		
Prep Date:	**03/08/2018 14:02**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	3.46	pCi/L	+/-16.6	16.6	28.9	50.0

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222017**	**Date Collected:**	**03/05/2018 08:55**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW45**			**Prep Basis:**	**"As Received"**
Batch ID:	**1744692**	**Method:**	**TRITIUM_DIST_LSC**	**SOP Ref:**	**GL-RAD-A-002**
Run Date:	**03/10/2018 21:36**	**Analyst:**	**MXH8**	**Instrument:**	**LSCGREEN**
Data File:	**T1744692R2.xls**	**Aliquot:**	**50 mL**	**Count Time:**	**50 min**
Prep Batch:	**1744692**	**Prep Method:**	**EPA 906.0 Modified**		
Prep Date:	**03/08/2018 07:12**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		1020	pCi/L	+/-226	301	329	400

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222017**	**Date Collected:**	**03/05/2018 08:55**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW45**			**Prep Basis:**	**"As Received"**
Batch ID:	**1745594**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/28/2018 20:06**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCBLUE**
Data File:	**E1745594R.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**15 min**
Prep Batch:	**1745594**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/23/2018 12:06**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		162	pCi/L	+/-29.4	34.4	39.9	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	33400	35600	CPM	93.8	(30%-105%)

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222018**	**Date Collected:**	**03/05/2018 12:00**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW72**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743967**	**Method:**	**DOE EML HASL-300,I-01 Mo**	**SOP Ref:**	**GL-RAD-A-006**
Run Date:	**03/09/2018 08:18**	**Analyst:**	**BSW1**	**Instrument:**	**XRAY1**
Data File:	**I445222018.CNF;1**	**Aliquot:**	**1.2 L**	**Count Time:**	**120 min**
Prep Batch:	**1743967**	**Prep Method:**	**DOE EML HASL-300,I-01 M**		
Prep Date:	**03/07/2018 10:17**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.164	pCi/L	+/-0.310	0.319	0.520	1.00

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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222018**	**Date Collected:**	**03/05/2018 12:00**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW72**			**Prep Basis:**	**"As Received"**
Batch ID:	**1744685**	**Method:**	**C14_LSC**	**SOP Ref:**	**GL-RAD-A-003**
Run Date:	**03/09/2018 20:19**	**Analyst:**	**BXM4**	**Instrument:**	**LSCYELLOW**
Data File:	**C1744685R.xls**	**Aliquot:**	**100.4 mL**	**Count Time:**	**15 min**
Prep Batch:	**1744685**	**Prep Method:**	**EPA EERF C-01 Modified**		
Prep Date:	**03/08/2018 14:02**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-4.72	pCi/L	+/-16.2	16.2	28.9	50.0

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:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222018**	**Date Collected:**	**03/05/2018 12:00**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW72**			**Prep Basis:**	**"As Received"**
Batch ID:	**1744692**	**Method:**	**TRITIUM_DIST_LSC**	**SOP Ref:**	**GL-RAD-A-002**
Run Date:	**03/12/2018 10:31**	**Analyst:**	**MXH8**	**Instrument:**	**LSCMOCHA**
Data File:	**T1744692R2.xls**	**Aliquot:**	**50 mL**	**Count Time:**	**50 min**
Prep Batch:	**1744692**	**Prep Method:**	**EPA 906.0 Modified**		
Prep Date:	**03/08/2018 07:12**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	186	pCi/L	+/-160	164	265	400

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:	**GEL445222**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**445222018**	**Date Collected:**	**03/05/2018 12:00**	**Matrix:**	**WATER**
		Date Received:	**03/06/2018 09:00**		
Client ID:	**B3HW72**			**Prep Basis:**	**"As Received"**
Batch ID:	**1745594**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/27/2018 20:30**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCBLUE**
Data File:	**E1745594.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**15 min**
Prep Batch:	**1745594**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/23/2018 12:06**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	29.1	pCi/L	+/-24.1	24.3	39.9	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	33100	35600	CPM	92.8	(30%-105%)

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

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QC Summary

Report Date: March 29, 2018
Page 1 of 3

Client : **CH2MHill Plateau Remediation Company**
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352

Contact: **Mr. Scot Fitzgerald**

Workorder: **445222**

Parmname	NOM		Sample	Qual	QC	Units	QC Criteria		Range	Analyst	Date Time
Rad Gamma Spec											
Batch 1743967											
QC1203982773 MB											
Iodine-129				U	0.357	pCi/L				BSW1	03/09/1808:19
Uncert:					+/-0.505						
TPU:					+/-0.507						
QC1203982774 444994001 DUP											
Iodine-129		U	-0.0525	U	-0.00839	pCi/L					03/09/1808:19
Uncert:			+/-0.312		+/-0.287		RPD:	0	N/A		
TPU:			+/-0.313		+/-0.287		RER:	0.203	(0-2)		
QC1203982775 444994001 MS											
Iodine-129	34.7	U	-0.0525		38.8	pCi/L	REC:	112	(75%-125%)		03/09/1808:20
Uncert:			+/-0.312		+/-5.05						
TPU:			+/-0.313		+/-6.37						
QC1203982776 LCS											
Iodine-129	34.7				36.9	pCi/L	REC:	106	(80%-120%)		03/09/1808:20
Uncert:					+/-4.71						
TPU:					+/-5.99						
Rad Liquid Scintillation											
Batch 1744685											
QC1203984384 MB											
Carbon-14				U	-4.94	pCi/L				BXM4	03/09/1820:52
Uncert:					+/-16.2						
TPU:					+/-16.2						
QC1203984385 445222001 DUP											
Carbon-14		U	1.89	U	-16.5	pCi/L					03/09/1821:08
Uncert:			+/-16.5		+/-15.7		RPD:	0	N/A		
TPU:			+/-16.5		+/-15.7		RER:	1.58	(0-2)		
QC1203984386 445222001 MS											
Carbon-14	3720	U	1.89		3480	pCi/L	REC:	94	(75%-125%)		03/09/1821:24
Uncert:			+/-16.5		+/-188						
TPU:			+/-16.5		+/-673						
QC1203984387 LCS											
Carbon-14	744				742	pCi/L	REC:	100	(80%-120%)		03/09/1821:41
Uncert:					+/-38.8						
TPU:					+/-143						
Batch 1744692											
QC1203984403 MB											
Tritium				U	0.974	pCi/L				MXH8	03/12/1813:05
Uncert:					+/-154						
TPU:					+/-154						
QC1203984404 445222001 DUP											
Tritium		U	-181	U	-198	pCi/L					03/11/1803:06
Uncert:			+/-183		+/-182		RPD:	0	N/A		
TPU:			+/-183		+/-182		RER:	0.122	(0-2)		
QC1203984405 445222001 MS											
							REC:				

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QC Summary

Workorder: **445222**

Parmname	NOM		Sample	Qual	QC	Units	QC Criteria		Range	Analyst	Date Time
Rad Liquid Scintillation											
Batch 1744692											
Tritium	5150	U	-181		5350	pCi/L		104	(75%-125%)		
	Uncert:		+/-183		+/-505						
	TPU:		+/-183		+/-1150						
QC1203984406 LCS											
Tritium	2570				2260	pCi/L	REC:	88	(80%-120%)		03/12/18 07:57
	Uncert:				+/-234						
	TPU:				+/-495						
Batch 1745594											
QC1203986367 MB											
Technetium-99				U	19.0	pCi/L				TXJ1	03/27/18 21:20
	Uncert:				+/-23.0						
	TPU:				+/-23.1						
**Technetium-99m Tracer	35600				33800	CPM	REC:	95	(30%-105%)		
QC1203986368 445222001 DUP											
Technetium-99			43.1		51.6	pCi/L					03/28/18 20:22
	Uncert:		+/-24.3		+/-25.7		RPD:	18	(0% - 100%)		
	TPU:		+/-24.7		+/-26.3		RER:	0.459	(0-2)		
**Technetium-99m Tracer	35600		34500		32800	CPM	REC:	92	(30%-105%)		
QC1203986369 LCS											
Technetium-99	888				953	pCi/L	REC:	107	(80%-120%)		03/27/18 21:54
	Uncert:				+/-50.5						
	TPU:				+/-117						
**Technetium-99m Tracer	35600				33400	CPM	REC:	94	(30%-105%)		

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 analyte was detected in the associated method blank >/= MDC or >5% sample activity.
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.

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QC Summary

Workorder: **445222**

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date	Time

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)

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.