GEL Laboratories LLC
a member of The GEL Group INC

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gel.com

April 12, 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: 444994
SDG: GEL444994

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on March 02, 2018. This revised data report has been prepared and reviewed in accordance with GEL's standard operating procedures. Per PD18-0166, this package was revised to correct the Volatiles reporting list.

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: F16-045-0954, F16-045-1062, F16-045-1066, F16-045-1070, F16-045-958, F16-045-962, F16-045-965, F16-045-969, F16-045-973 and F16-045-975
Enclosures

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Problem and Discrepancy Report

PROBLEM AND DISCREPANCY (P&D) REPORT

P&D Number: PD18-0166
Rev. Number: 0
Laboratory: GEL
SDG Number: GEL444994
Date Initiated: 04/12/2018

SAMPLE EVENT INFORMATION

SAF NUM(S): F16-045

SAMPLING INFORMATION

NUMBER OF SAMPLES: 10

SAMPLE MATRIX: WATER

ISSUE BACKGROUND

CLASS: Data Issues

TYPE: Missing sample data

DESCRIPTION: The results for most of the requested VOCs are not reported for all samples submitted in this SDG; only the results for the ADDON VOC was reported.

RESOLUTION

PROPOSED RESOLUTION: Please correct the issue and resubmit the hard copy and electronic copy data packages

FINAL RESOLUTION:

SUBMITTED BY:

FITZGERALD, SL 04/11/2018

Case Narrative

Per PD18-0166, this package was revised to correct the Volatiles reporting list.

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF F16-045
SDG: GEL444994

April 12, 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 02, 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
444994001	B3HVY6
444994002	B3HW81
444994003	B3HW89
444994004	B3HVY2
444994005	B3HVX1
444994006	B3HVY8
444994007	B3HVX5
444994008	B3HVX8
444994009	B3HW85
444994010	B3HVW7

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, 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 #: GEL444994
Work Order #: 444994

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 Re-extraction/Re-analysis
Sample 444994009 (B3HW85) was re-analyzed due to unacceptable surrogate or internal standard recoveries in the initial analysis. The re-analyses confirmed/and or passed and were reported.

Metals

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.

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.

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
Sample 1203982372 (LCS) was recounted due to low recovery. The recount is reported. Samples 444994002 (B3HW81), 444994003 (B3HW89), 444994005 (B3HVX1), 444994007 (B3HVX5), 444994008 (B3HVX8), 444994009 (B3HW85) and 444994010 (B3HVW7) were recounted to verify sample results. Recounts are reported.

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
Sample 1203982404 (LCS) was recounted due to low recovery. The second recount is reported.

Miscellaneous Information

Additional Comments
The matrix spike, 1203982403 (B3HVY6MS), aliquot was reduced to conserve sample volume.

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.

Miscellaneous Information

Additional Comments
The matrix spike, 1203982446 (B3HVY6MS), aliquot was reduced to conserve sample volume.

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			F16-045-973	PAGE 1 OF 1
COLLECTOR: Kevin Patterson CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT 30 Days	
SAMPLING LOCATION: Valve V03-YE20 , 289TB, 299-W14-22	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045	ORIGINAL	
ICE CHEST NO.: GWS-567	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.: 9099		BILL OF LADING/AIR BILL NO.: 7716 7187 4829		

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					
B3HVY6	N/A	WATER	MAR 01 2018	0840	✓	✓	✓	✓	✓

444994

4/13/2018

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 01 2018 0940	Dan Woehle CHPRC	MAR 01 2018 0940
Dan Woehle CHPRC	MAR 01 2018 1400	FEDEX	
Fed Ex		C. Tamplin	3/2/18 0905

SIGN/ PRINT NAMES

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 2/15/2018 FSR ID = FSR57677 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F16-045-1062	PAGE 1 OF 1
COLLECTOR: Kevin Patterson CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT 30 Days	
SAMPLING LOCATION: Valve V05-YE04, 289-T, 299-W14-74	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045	ORIGINAL	
ICE CHEST NO.: GWS-567	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.: 9099		BILL OF LADING/AIR BILL NO.: 7716 7187 4829		

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					
B3HW81	N/A	WATER	MAR 01 2018	1050	✓	✓	✓	✓	✓

444994

4/13/2018

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 01 2018 1130	Lesly Wall /CHPRC	MAR 01 2018 1130
Lesly Wall /CHPRC	MAR 01 2018 1400	FEDEX	
Fed Ex		C. Tarplin	3/2/18 0905

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 2/15/2018 FSR ID = FSR57667 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

86 lbs

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F16-045-1070	PAGE 1 OF 1
COLLECTOR: Kevin Patterson, CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT: 30 Days	
SAMPLING LOCATION: Valve V05-YE14, 289-T, 299-W6-15	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045	ORIGINAL	
ICE CHEST NO.: GWS-567	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.: 9099		BILL OF LADING/AIR BILL NO.: 7716 7187 4829		

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;

444994

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B3HW89	N/A	WATER	MAR 01 2018	~~0934~~ 1034 KF 3-1-18	✓	✓	✓	✓	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 01 2018 1130	Lesly Wall ACHPRC	MAR 01 2018 1130
Lesly Wall ACHPRC	MAR 01 2018 1400 Fed Ex	FEDEX	
		C Tamplin	3/2/18 0905

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 = FSR57669 | TRVL NUM = TRVL-18-083 | A-6003-618 (REV 3)

4/13/2018

Revision #1 13-APR-2018 REV.1

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F16-045-969	PAGE 1 OF 1
COLLECTOR: Kevin Patterson, CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT: 30 Days	
SAMPLING LOCATION: Valve V03-YE19 , 289TB, 299-W12-4	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045	ORIGINAL	
ICE CHEST NO.: GWS-738	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.: 9096		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

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

SPECIAL HANDLING AND/OR STORAGE
N/A

PRESERVATION	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					
B3HVY2	N/A	WATER	MAR 0 1 2018	0824	✓	✓	✓	✓	✓

444994

4/13/2018

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 0 1 2018 0940	Dan Woehle CHPRC	MAR 0 1 2018 0940
Dan Woehle CHPRC	MAR 0 1 2018 1400	FEDEX	
Fed Ex		C. Tarplin	3/2/18 0905

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 = FSR57676 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

Revision #1 13-APR-2018 REV.1

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F16-045-958	PAGE 1 OF 1
COLLECTOR: Kevin Patterson, CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT: 30 Days	
SAMPLING LOCATION: Valve V03-YE17, 289TB, 299-W5-1	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045	ORIGINAL	
ICE CHEST NO.: GLOS-738	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.: 9096		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

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

SPECIAL HANDLING AND/OR STORAGE
N/A

PRESERVATION	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					
B3HVX1	N/A	WATER	MAR 01 2018	0901	✓	✓	✓	✓	✓

444994

4/13/2018

CHAIN OF POSSESSION: RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES: RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson, CHPRC	MAR 01 2018 0940	Dan Woehle, CHPRC	MAR 01 2018 0940
Dan Woehle, CHPRC	MAR 01 2018 1400	FEDEX	
Fed Ex		C. Tarplin	3/2/18 0905

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 = FSR57673 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F16-045-975	PAGE 1 OF 1
COLLECTOR Kevin Patterson CHPRC	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR SUMNER, LC	REQUIRED TAT 30 Days	
SAMPLING LOCATION Valve V03-YE20 , 289TB, 299-W14-22 FTB	PROJECT DESIGNATION 200W Pump & Treat - Extraction Well Water Sampling		SAF NO. F16-045	ORIGINAL	
ICE CHEST NO. GWS-738	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. 9096		BILL OF LADING/AIR BILL NO.		

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	HCl or H2SO4 to pH <2/Cool <=6C
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	*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.	HOLDING TIME	14 Days
		TYPE OF CONTAINER	aGs*
		NO. OF CONTAINER(S)	4
		VOLUME	40mL
	SPECIAL HANDLING AND/OR STORAGE N/A	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

444994

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B3HVY8	N/A	WATER	MAR 0 1 2018	0700	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME	SPECIAL INSTRUCTIONS
Kevin Patterson CHPRC	MAR 0 1 2018 0940	Dan Woehle CHPRC	MAR 0 1 2018 0940	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};
Dan Woehle CHPRC	MAR 0 1 2018 1400 Fed Ex	FEDEX		
		C. Tarplin	3/2/18 0905	

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/15/2018 FSR ID = FSR57678 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

83165

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F16-045-962	PAGE 1 OF 1
COLLECTOR: Kevin Patterson, CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT: 30 Days	
SAMPLING LOCATION: Valve V03-YE17, 289TB, 299-W5-1 DUP	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045	ORIGINAL	
ICE CHEST NO.: GL05-738	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.: 9096		BILL OF LADING/AIR BILL NO.		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

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

SPECIAL HANDLING AND/OR STORAGE
N/A

PRESERVATION	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					
B3HVX5	N/A	WATER	MAR 01 2018	0901	✓	✓	✓	✓	✓

444994

4/13/2018

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 01 2018 0940	Dan Woehle CHPRC	MAR 01 2018 0940
Dan Woehle CHPRC	MAR 01 2018 1400	FEDEX	
Fed Ex		C. Tarplin	3/2/18 0905

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 = FSR57674 | TRVL NUM = TRVL-18-083 | A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F16-045-965 PAGE 1 OF 1

COLLECTOR Kevin Patterson CHPRC	**COMPANY CONTACT** SUMNER, LC	**TELEPHONE NO.** 376-3922	**PROJECT COORDINATOR** SUMNER, LC
SAMPLING LOCATION Valve V03-YE18, 289TB, 299-W12-3	**PROJECT DESIGNATION** 200W Pump & Treat - Extraction Well Water Sampling		**SAF NO.** F16-045
ICE CHEST NO. GWS-736	**FIELD LOGBOOK NO.** HNF-N-491 19	**ACTUAL SAMPLE DEPTH** N/A	**PURCHASE ORDER/CHARGE CODE** 304235
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 9100		**BILL OF LADING/AIR BILL NO.** 7716 7906 6562

REQUIRED TAT 30 Days

ORIGINAL

METHOD OF SHIPMENT FEDERAL EXPRESS

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					
B3HVX8	N/A	WATER	MAR 01 2018	0948	✓	✓	✓	✓	✓

444994

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 01 2018 1130	Troy Bacon CHPRC Troy L. Bacon	MAR 01 2018 1130
Troy Bacon CHPRC Troy L. Bacon	MAR 01 2018 1400	FEDEX	
Fed Ex		C. Tarplin	3/2/18 0905

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 = FSR57675** **TRVL NUM = TRVL-18-083** A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F16-045-1066	PAGE 1 OF 1
COLLECTOR: Kevin Patterson, CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT: 30 Days	
SAMPLING LOCATION: Valve V05-YE08, 289-T, 299-W11-96	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045	ORIGINAL	
ICE CHEST NO.: GWS-736	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.: 9100		BILL OF LADING/AIR BILL NO.: 7716 7706 6562		

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					
B3HW85	N/A	WATER	MAR 01 2018	1102	✓	✓	✓	✓	✓

444994

4/13/2018

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 01 2018 1130	Troy Bacon CHPRC Troy L. Bacon	MAR 01 2018 1130
Troy Bacon CHPRC Troy L. Bacon	MAR 01 2018 1400	FEDEX	
Fed Ex		C. Tarplin	3/2/18 0905

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 = FSR57668 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F16-045-954	PAGE 1 OF 1
COLLECTOR: Kevin Patterson, CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT: 30 Days	
SAMPLING LOCATION: Valve V03-YE05 , 289TB, 299-W12-2	PROJECT DESIGNATION: 200W Pump & Treat - Extraction Well Water Sampling		SAF NO.: F16-045	ORIGINAL	
ICE CHEST NO.: GWS -736	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.: 9100		BILL OF LADING/AIR BILL NO.: 7716 7706 6562		

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					
B3HVW7	N/A	WATER	MAR 01 2018	1006	✓	✓	✓	✓	✓

444994

4/13/2018

CHAIN OF POSSESSION: RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES: RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson, CHPRC	MAR 01 2018 1130	Troy Bacon, CHPRC Troy L. Bacon	MAR 01 2018 1130
Troy Bacon, CHPRC Troy L. Bacon	MAR 01 2018 1400	FEDEX	
Fed Ex		C. Tarplin	3/2/18 0905

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 = FSR57672 TRVL NUM = TRVL-18-083 A-6003-618 (REV 3)

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

HS

Client: CPRC	SDG/AR/COC/Work Order: 444994
Received By: Chakeris Tarplin	Date Received: March 02, 2018
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 771677065562 771668590750 771671874829

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: 2°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 X No___ N/A___ Sample ID's and containers affected:
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 NS Date 3/5/18 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: 26−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	

Revision #1 13-APR-2018

Laboratory Certifications

List of current GEL Certifications as of 12 April 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 #: GEL444994
Work Order #: 444994

Product: **Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method: SW846 8260C
Analytical Procedure: GL-OA-E-038 REV# 26
Analytical Batch: 1744514

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

GEL Sample ID#	Client Sample Identification
444994001	B3HVY6
444994002	B3HW81
444994003	B3HW89
444994004	B3HVY2
444994005	B3HVX1
444994006	B3HVY8
444994007	B3HVX5
444994008	B3HVX8
444994009	B3HW85
444994010	B3HVW7
1203984079	Method Blank (MB)
1203984080	Laboratory Control Sample (LCS)
1203984083	444994001(B3HVY6) Post Spike (PS)
1203984085	444994001(B3HVY6) Post Spike Duplicate (PSD)
1203989663	Method Blank (MB)
1203989664	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 Re-extraction/Re-analysis
Sample 444994009 (B3HW85) was re-analyzed due to unacceptable surrogate or internal standard recoveries in the initial analysis. The re-analyses confirmed/and or passed and were reported.

Miscellaneous Information

Additional Comments
The analyte list was updated after the results were submitted to the client. Carbon tetrachloride was reported with results over the calibration range for samples 444994001 (B3HVY6), 444994002 (B3HW81), 444994003 (B3HW89), 444994004 (B3HVY2), 444994005 (B3HVX1), 444994007 (B3HVX5), 444994008 (B3HVX8), 444994009 (B3HW85) and 444994010 (B3HVW7) because it was not a target analyte at the time of analysis. Therefore, it was not re-analyzed at a dilution to bring the results within the calibration range.

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: GEL444994 GEL Work Order: 444994

The Qualifiers in this report are defined as follows:

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

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

DL Indicates that sample is diluted.

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

RE Indicates that sample is re-extracted.

Review/Validation

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

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

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

Date: 13 APR 2018 **Title: Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL444994**	**Date Collected:**	**03/01/2018 08:40**	**Matrix:**	**WATER**
Lab Sample ID:	**444994001**	**Date Received:**	**03/02/2018 09:05**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HVY6**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1744514**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**03/06/2018 11:50**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/06/2018 11:50**				
Data File:	**030618V3\3Y207.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	E	458	ug/L	0.300	2.00	5.00
67-66-3	Chloroform	J	4.78	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	3.37	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:	**GEL444994**	**Date Collected:**	**03/01/2018 10:50**	**Matrix:**	**WATER**
Lab Sample ID:	**444994002**	**Date Received:**	**03/02/2018 09:05**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HW81**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1744514**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**03/06/2018 12:22**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/06/2018 12:22**				
Data File:	**030618V3\3Y208.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	E	823	ug/L	0.300	2.00	5.00
67-66-3	Chloroform		6.88	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		6.50	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:	**GEL444994**	**Date Collected:**	**03/01/2018 10:34**	**Matrix:**	**WATER**
Lab Sample ID:	**444994003**	**Date Received:**	**03/02/2018 09:05**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HW89**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1744514**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**03/06/2018 12:53**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/06/2018 12:53**				
Data File:	**030618V3\3Y209.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	E	868	ug/L	0.300	2.00	5.00
67-66-3	Chloroform		7.00	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		7.53	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:	**GEL444994**	**Date Collected:**	**03/01/2018 08:24**	**Matrix:**	**WATER**
Lab Sample ID:	**444994004**	**Date Received:**	**03/02/2018 09:05**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HVY2**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1744514**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**03/06/2018 13:25**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/06/2018 13:25**				
Data File:	**030618V3\3Y210.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	E	620	ug/L	0.300	2.00	5.00
67-66-3	Chloroform		6.48	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	3.05	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:	**GEL444994**	**Date Collected:**	**03/01/2018 09:01**	**Matrix:**	**WATER**
Lab Sample ID:	**444994005**	**Date Received:**	**03/02/2018 09:05**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HVX1**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1744514**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**03/06/2018 13:57**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/06/2018 13:57**				
Data File:	**030618V3\3Y211.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	E	249	ug/L	0.300	2.00	5.00
67-66-3	Chloroform	J	3.79	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	0.740	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:	**GEL444994**	**Date Collected:**	**03/01/2018 07:00**	**Matrix:**	**WATER**
Lab Sample ID:	**444994006**	**Date Received:**	**03/02/2018 09:05**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HVY8**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1744514**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**03/06/2018 14:29**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/06/2018 14:29**				
Data File:	**030618V3\3Y212.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	U	0.300	ug/L	0.300	2.00	5.00
67-66-3	Chloroform	U	0.300	ug/L	0.300	2.00	5.00
75-09-2	Methylene chloride		5.61	ug/L	1.60	5.00	5.00
79-01-6	Trichloroethylene	U	0.300	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:	**GEL444994**	**Date Collected:**	**03/01/2018 09:01**	**Matrix:**	**WATER**
Lab Sample ID:	**444994007**	**Date Received:**	**03/02/2018 09:05**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HVX5**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1744514**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**03/06/2018 15:01**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/06/2018 15:01**				
Data File:	**030618V3\3Y213.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	E	258	ug/L	0.300	2.00	5.00
67-66-3	Chloroform	J	3.88	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	0.760	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:	**GEL444994**	**Date Collected:**	**03/01/2018 09:48**	**Matrix:**	**WATER**
Lab Sample ID:	**444994008**	**Date Received:**	**03/02/2018 09:05**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HVX8**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1744514**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**03/06/2018 15:33**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/06/2018 15:33**				
Data File:	**030618V3\3Y214.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	E	480	ug/L	0.300	2.00	5.00
67-66-3	Chloroform	J	4.30	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	1.19	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:	**GEL444994**	**Date Collected:**	**03/01/2018 11:02**	**Matrix:**	**WATER**
Lab Sample ID:	**444994009**	**Date Received:**	**03/02/2018 09:05**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HW85**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1744514**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**03/14/2018 21:39**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/14/2018 21:39**				
Data File:	**031418V3\3Z324.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	E	1160	ug/L	0.300	2.00	5.00
67-66-3	Chloroform		9.30	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		9.30	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:	**GEL444994**	**Date Collected:**	**03/01/2018 10:06**	**Matrix:**	**WATER**
Lab Sample ID:	**444994010**	**Date Received:**	**03/02/2018 09:05**		
		Client:	**CPRC001**	**Project:**	**CPRC0F16045**
Client ID:	**B3HVW7**	**Method:**	**SW846 8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1744514**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**03/06/2018 16:36**	**Analyst:**	**JP1**	**Purge Vol:**	**5 mL**
Prep Date:	**03/06/2018 16:36**				
Data File:	**030618V3\3Y216.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	E	824	ug/L	0.300	2.00	5.00
67-66-3	Chloroform		6.62	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	2.60	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	

Quality Control Summary

GEL LABORATORIES LLC

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

QC Summary

Report Date: April 13, 2018

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **444994**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS										
Batch 1744514										
QC1203984080 LCS										
Carbon tetrachloride	50.0			57.3	ug/L		115	(70%-130%)	JP1	03/06/18 09:43
Chloroform	50.0			53.5	ug/L		107	(70%-130%)		
Chloromethane	50.0			60.0	ug/L		120	(70%-130%)		
Methylene chloride	50.0			50.2	ug/L		100	(70%-130%)		
Trichloroethylene	50.0			58.2	ug/L		116	(70%-130%)		
Vinyl chloride	50.0			58.9	ug/L		118	(70%-130%)		
cis-1,2-Dichloroethylene	50.0			55.7	ug/L		111	(70%-130%)		
**1,2-Dichloroethane-d4	50.0			50.9	ug/L		102	(70%-130%)		
**Bromofluorobenzene	50.0			51.0	ug/L		102	(70%-130%)		
**Toluene-d8	50.0			48.4	ug/L		97	(70%-130%)		
QC1203989664 LCS										
Carbon tetrachloride	50.0			45.4	ug/L		91	(70%-130%)		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%)		

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QC Summary

Workorder: **444994**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS										
Batch 1744514										
Methylene chloride	50.0			40.0	ug/L		80	(70%-130%)	JP1	03/14/18 12:11
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%)		
QC1203984079 MB										
Carbon tetrachloride			U	0.300	ug/L					03/06/18 11:18
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			49.5	ug/L		99	(70%-130%)		

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QC Summary

Workorder: 444994

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS											
Batch 1744514											
**Bromofluorobenzene	50.0				52.7	ug/L		105	(70%-130%)	JP1	03/06/18 11:18
**Toluene-d8	50.0				48.4	ug/L		97	(70%-130%)		
QC1203989663 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%)		
QC1203984083 444994001 PS											
Carbon tetrachloride	50.0	E	458	E	418	ug/L		N/A	(70%-130%)		03/06/18 18:43
Chloroform	50.0	J	4.78		53.5	ug/L		98	(70%-130%)		
Chloromethane	50.0	U	0.00		49.0	ug/L		98	(70%-130%)		

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QC Summary

Workorder: **444994**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS											
Batch 1744514											
Methylene chloride	50.0	U	0.00		46.7	ug/L		93	(70%-130%)	JP1	03/06/18 18:43
Trichloroethylene	50.0	J	3.37		49.8	ug/L		93	(70%-130%)		
Vinyl chloride	50.0	U	0.00		50.0	ug/L		100	(70%-130%)		
cis-1,2-Dichloroethylene	50.0	U	0.00		50.9	ug/L		102	(70%-130%)		
**1,2-Dichloroethane-d4	50.0		52.6		46.9	ug/L		94	(70%-130%)		
**Bromofluorobenzene	50.0		51.2		49.5	ug/L		99	(70%-130%)		
**Toluene-d8	50.0		48.8		46.6	ug/L		93	(70%-130%)		
QC1203984085 444994001 PSD											
Carbon tetrachloride	50.0	E	458	E	436	ug/L	4	N/A	(0%-20%)		03/06/18 19:14
Chloroform	50.0	J	4.78		56.8	ug/L	6	104	(0%-20%)		
Chloromethane	50.0	U	0.00		53.5	ug/L	9	107	(0%-20%)		
Methylene chloride	50.0	U	0.00		51.2	ug/L	9	102	(0%-20%)		
Trichloroethylene	50.0	J	3.37		56.9	ug/L	13	107	(0%-20%)		
Vinyl chloride	50.0	U	0.00		54.8	ug/L	9	110	(0%-20%)		
cis-1,2-Dichloroethylene	50.0	U	0.00		56.0	ug/L	10	112	(0%-20%)		
**1,2-Dichloroethane-d4	50.0		52.6		48.8	ug/L		98	(70%-130%)		

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QC Summary

Workorder: **444994**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1744514											
**Bromofluorobenzene	50.0	51.2		48.6	ug/L		97	(70%-130%)	JP1	03/06/18	19:14
**Toluene-d8	50.0	48.8		46.8	ug/L		94	(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)

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: GEL444994

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203984080	LCS for batch 1744514	102	97	102
1203984079	MB for batch 1744514	99	97	105
444994001	B3HVY6	105	98	102
444994002	B3HW81	91	94	102
444994003	B3HW89	99	99	102
444994004	B3HVY2	95	94	101
444994005	B3HVX1	101	95	102
444994006	B3HVY8	95	91	102
444994007	B3HVX5	98	93	100
444994008	B3HVX8	103	96	102
444994010	B3HVW7	103	94	99
1203984083	B3HVY6PS	94	93	99
1203984085	B3HVY6PSD	98	94	97
1203989664	LCS for batch 1744514	94	98	103
1203989663	MB for batch 1744514	100	100	105
444994009	B3HW85	110	94	100

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 #: GEL444994
Work Order #: 444994

Product: **Determination of Metals by ICP-MS**
Analytical Method: SW846 3005A/6020B
Analytical Procedure: GL-MA-E-014 REV# 32
Analytical Batch: 1743682

Preparation Method: SW846 3005A
Preparation Procedure: GL-MA-E-006 REV# 14
Preparation Batch: 1743681

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

GEL Sample ID#	Client Sample Identification
444994001	B3HVY6
444994002	B3HW81
444994003	B3HW89
444994004	B3HVY2
444994005	B3HVX1
444994007	B3HVX5
444994008	B3HVX8
444994009	B3HW85
444994010	B3HVW7
1203982155	Method Blank (MB)**ICP-MS**
1203982156	Laboratory Control Sample (LCS)
1203982159	444976013(NonSDGL) Serial Dilution (SD)
1203982157	444976013(NonSDGS) Matrix Spike (MS)
1203982158	444976013(NonSDGSD) 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.

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: GEL444994 GEL Work Order: 444994

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.

N Spike Sample recovery is outside control limits.

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

Review/Validation

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

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

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

Date: 26 MAR 2018 **Title: Data Validator**

Sample Data Summary

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL444994 **CONTRACT:** CPRC0F16045 **METHOD TYPE:** SW846

SAMPLE ID: 444994001 **BASIS:** As Received **DATE COLLECTED** 01−MAR−18

CLIENT ID: B3HVY6 **LEVEL:** Low **DATE RECEIVED** 02−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 21:03	180313−1	1743682
7440−38−2	Arsenic	3.42	ug/L	B	2	5	5	1	MS	BAJ	03/13/18 21:03	180313−1	1743682
7440−43−9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:03	180313−1	1743682
7440−47−3	Chromium	7.22	ug/L	B	3	10	10	1	MS	BAJ	03/13/18 21:03	180313−1	1743682
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:03	180313−1	1743682
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:03	180313−1	1743682
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/13/18 21:03	180313−1	1743682
7439−98−7	Molybdenum	3.58	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/13/18 21:03	180313−1	1743682
7440−02−0	Nickel	0.614	ug/L	B	0.6	2	2	1	MS	BAJ	03/13/18 21:03	180313−1	1743682
7782−49−2	Selenium	6.33	ug/L		2	5	5	1	MS	BAJ	03/15/18 15:56	180315−2	1743682
7440−61−1	Uranium	1.27	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/15/18 15:56	180315−2	1743682
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/13/18 21:03	180313−1	1743682

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1743682	1743681	SW846 3005A	50	mL	50	mL	03/05/18	SXW1

***Analytical Methods:**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL444994 **CONTRACT:** CPRC0F16045 **METHOD TYPE:** SW846

SAMPLE ID: 444994002 **BASIS:** As Received **DATE COLLECTED** 01−MAR−18

CLIENT ID: B3HW81 **LEVEL:** Low **DATE RECEIVED** 02−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 21:06	180313−1	1743682
7440−38−2	Arsenic	2.85	ug/L	B	2	5	5	1	MS	BAJ	03/13/18 21:06	180313−1	1743682
7440−43−9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:06	180313−1	1743682
7440−47−3	Chromium	35.8	ug/L		3	10	10	1	MS	BAJ	03/13/18 21:06	180313−1	1743682
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:06	180313−1	1743682
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:06	180313−1	1743682
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/13/18 21:06	180313−1	1743682
7439−98−7	Molybdenum	2.48	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/13/18 21:06	180313−1	1743682
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/13/18 21:06	180313−1	1743682
7782−49−2	Selenium	3.59	ug/L	B	2	5	5	1	MS	BAJ	03/15/18 15:58	180315−2	1743682
7440−61−1	Uranium	1.28	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/15/18 15:58	180315−2	1743682
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/13/18 21:06	180313−1	1743682

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1743682	1743681	SW846 3005A	50	mL	50	mL	03/05/18	SXW1

***Analytical Methods:**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL444994 **CONTRACT:** CPRC0F16045 **METHOD TYPE:** SW846

SAMPLE ID: 444994003 **BASIS:** As Received **DATE COLLECTED** 01−MAR−18

CLIENT ID: B3HW89 **LEVEL:** Low **DATE RECEIVED** 02−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 21:10	180313−1	1743682
7440−38−2	Arsenic	2.83	ug/L	B	2	5	5	1	MS	BAJ	03/13/18 21:10	180313−1	1743682
7440−43−9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:10	180313−1	1743682
7440−47−3	Chromium	126	ug/L		3	10	10	1	MS	BAJ	03/13/18 21:10	180313−1	1743682
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:10	180313−1	1743682
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:10	180313−1	1743682
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/13/18 21:10	180313−1	1743682
7439−98−7	Molybdenum	1.82	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/13/18 21:10	180313−1	1743682
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/13/18 21:10	180313−1	1743682
7782−49−2	Selenium	3.55	ug/L	B	2	5	5	1	MS	BAJ	03/15/18 16:00	180315−2	1743682
7440−61−1	Uranium	1.56	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/15/18 16:00	180315−2	1743682
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/13/18 21:10	180313−1	1743682

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1743682	1743681	SW846 3005A	50	mL	50	mL	03/05/18	SXW1

***Analytical Methods:**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL444994 **CONTRACT:** CPRC0F16045 **METHOD TYPE:** SW846

SAMPLE ID: 444994004 **BASIS:** As Received **DATE COLLECTED** 01−MAR−18

CLIENT ID: B3HVY2 **LEVEL:** Low **DATE RECEIVED** 02−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 21:13	180313−1	1743682
7440−38−2	Arsenic	3.51	ug/L	B	2	5	5	1	MS	BAJ	03/13/18 21:13	180313−1	1743682
7440−43−9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:13	180313−1	1743682
7440−47−3	Chromium	28.1	ug/L		3	10	10	1	MS	BAJ	03/13/18 21:13	180313−1	1743682
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:13	180313−1	1743682
7440−50−8	Copper	0.773	ug/L	B	0.3	1	1	1	MS	BAJ	03/13/18 21:13	180313−1	1743682
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/13/18 21:13	180313−1	1743682
7439−98−7	Molybdenum	3.11	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/13/18 21:13	180313−1	1743682
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/13/18 21:13	180313−1	1743682
7782−49−2	Selenium	4.35	ug/L	B	2	5	5	1	MS	BAJ	03/15/18 16:03	180315−2	1743682
7440−61−1	Uranium	1.19	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/15/18 16:03	180315−2	1743682
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/13/18 21:13	180313−1	1743682

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1743682	1743681	SW846 3005A	50	mL	50	mL	03/05/18	SXW1

***Analytical Methods:**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL444994 **CONTRACT:** CPRC0F16045 **METHOD TYPE:** SW846

SAMPLE ID: 444994005 **BASIS:** As Received **DATE COLLECTED** 01−MAR−18

CLIENT ID: B3HVX1 **LEVEL:** Low **DATE RECEIVED** 02−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 21:23	180313−1	1743682
7440−38−2	Arsenic	3.27	ug/L	B	2	5	5	1	MS	BAJ	03/13/18 21:23	180313−1	1743682
7440−43−9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:23	180313−1	1743682
7440−47−3	Chromium	49.9	ug/L		3	10	10	1	MS	BAJ	03/13/18 21:23	180313−1	1743682
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:23	180313−1	1743682
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:23	180313−1	1743682
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/13/18 21:23	180313−1	1743682
7439−98−7	Molybdenum	2.34	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/13/18 21:23	180313−1	1743682
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/13/18 21:23	180313−1	1743682
7782−49−2	Selenium	2.87	ug/L	B	2	5	5	1	MS	BAJ	03/15/18 16:09	180315−2	1743682
7440−61−1	Uranium	1.52	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/15/18 16:09	180315−2	1743682
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/13/18 21:23	180313−1	1743682

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1743682	1743681	SW846 3005A	50	mL	50	mL	03/05/18	SXW1

***Analytical Methods:**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL444994 **CONTRACT:** CPRC0F16045 **METHOD TYPE:** SW846

SAMPLE ID: 444994007 **BASIS:** As Received **DATE COLLECTED** 01−MAR−18

CLIENT ID: B3HVX5 **LEVEL:** Low **DATE RECEIVED** 02−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 21:26	180313−1	1743682
7440−38−2	Arsenic	3.12	ug/L	B	2	5	5	1	MS	BAJ	03/13/18 21:26	180313−1	1743682
7440−43−9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:26	180313−1	1743682
7440−47−3	Chromium	46.1	ug/L		3	10	10	1	MS	BAJ	03/13/18 21:26	180313−1	1743682
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:26	180313−1	1743682
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:26	180313−1	1743682
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/13/18 21:26	180313−1	1743682
7439−98−7	Molybdenum	2.26	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/13/18 21:26	180313−1	1743682
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/13/18 21:26	180313−1	1743682
7782−49−2	Selenium	2.7	ug/L	B	2	5	5	1	MS	BAJ	03/15/18 16:12	180315−2	1743682
7440−61−1	Uranium	1.46	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/15/18 16:12	180315−2	1743682
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/13/18 21:26	180313−1	1743682

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1743682	1743681	SW846 3005A	50	mL	50	mL	03/05/18	SXW1

***Analytical Methods:**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL444994 **CONTRACT:** CPRC0F16045 **METHOD TYPE:** SW846

SAMPLE ID: 444994008 **BASIS:** As Received **DATE COLLECTED** 01−MAR−18

CLIENT ID: B3HVX8 **LEVEL:** Low **DATE RECEIVED** 02−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 21:29	180313−1	1743682
7440−38−2	Arsenic	3.24	ug/L	B	2	5	5	1	MS	BAJ	03/13/18 21:29	180313−1	1743682
7440−43−9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:29	180313−1	1743682
7440−47−3	Chromium	41.9	ug/L		3	10	10	1	MS	BAJ	03/13/18 21:29	180313−1	1743682
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:29	180313−1	1743682
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:29	180313−1	1743682
7439−96−5	Manganese	1.01	ug/L	B	1	5	5	1	MS	BAJ	03/13/18 21:29	180313−1	1743682
7439−98−7	Molybdenum	2.4	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/13/18 21:29	180313−1	1743682
7440−02−0	Nickel	0.688	ug/L	B	0.6	2	2	1	MS	BAJ	03/13/18 21:29	180313−1	1743682
7782−49−2	Selenium	3.86	ug/L	B	2	5	5	1	MS	BAJ	03/15/18 16:14	180315−2	1743682
7440−61−1	Uranium	1.48	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/15/18 16:14	180315−2	1743682
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/13/18 21:29	180313−1	1743682

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1743682	1743681	SW846 3005A	50	mL	50	mL	03/05/18	SXW1

***Analytical Methods:**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL444994 **CONTRACT:** CPRC0F16045 **METHOD TYPE:** SW846

SAMPLE ID: 444994009 **BASIS:** As Received **DATE COLLECTED** 01−MAR−18

CLIENT ID: B3HW85 **LEVEL:** Low **DATE RECEIVED** 02−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 21:33	180313−1	1743682
7440−38−2	Arsenic	2.69	ug/L	B	2	5	5	1	MS	BAJ	03/13/18 21:33	180313−1	1743682
7440−43−9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:33	180313−1	1743682
7440−47−3	Chromium	79.1	ug/L		3	10	10	1	MS	BAJ	03/13/18 21:33	180313−1	1743682
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:33	180313−1	1743682
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:33	180313−1	1743682
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/13/18 21:33	180313−1	1743682
7439−98−7	Molybdenum	1.9	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/13/18 21:33	180313−1	1743682
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/13/18 21:33	180313−1	1743682
7782−49−2	Selenium	3.8	ug/L	B	2	5	5	1	MS	BAJ	03/15/18 16:16	180315−2	1743682
7440−61−1	Uranium	1.6	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/15/18 16:16	180315−2	1743682
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/13/18 21:33	180313−1	1743682

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1743682	1743681	SW846 3005A	50	mL	50	mL	03/05/18	SXW1

***Analytical Methods:**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL444994 **CONTRACT:** CPRC0F16045 **METHOD TYPE:** SW846

SAMPLE ID: 444994010 **BASIS:** As Received **DATE COLLECTED** 01−MAR−18

CLIENT ID: B3HVW7 **LEVEL:** Low **DATE RECEIVED** 02−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 21:36	180313−1	1743682
7440−38−2	Arsenic	2.95	ug/L	B	2	5	5	1	MS	BAJ	03/13/18 21:36	180313−1	1743682
7440−43−9	Cadmium	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:36	180313−1	1743682
7440−47−3	Chromium	24.6	ug/L		3	10	10	1	MS	BAJ	03/13/18 21:36	180313−1	1743682
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:36	180313−1	1743682
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/13/18 21:36	180313−1	1743682
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/13/18 21:36	180313−1	1743682
7439−98−7	Molybdenum	3.26	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/13/18 21:36	180313−1	1743682
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/13/18 21:36	180313−1	1743682
7782−49−2	Selenium	3.52	ug/L	B	2	5	5	1	MS	BAJ	03/15/18 16:18	180315−2	1743682
7440−61−1	Uranium	1.15	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/15/18 16:18	180315−2	1743682
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/13/18 21:36	180313−1	1743682

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1743682	1743681	SW846 3005A	50	mL	50	mL	03/05/18	SXW1

***Analytical Methods:**

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 26, 2018

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **444994**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS										
Batch 1743682										
QC1203982156 LCS										
Aluminum	2000			1860	ug/L		93.2	(80%-120%)	BAJ	03/13/18 20:27
Arsenic	50.0			53.7	ug/L		107	(80%-120%)		
Cadmium	50.0			53.4	ug/L		107	(80%-120%)		
Chromium	50.0			52.7	ug/L		105	(80%-120%)		
Cobalt	50.0			53.8	ug/L		108	(80%-120%)		
Copper	50.0			53.2	ug/L		106	(80%-120%)		
Manganese	50.0			48.9	ug/L		97.8	(80%-120%)		
Molybdenum	50.0			57.3	ug/L		115	(80%-120%)		
Nickel	50.0			59.1	ug/L		118	(80%-120%)		
Selenium	50.0			53.6	ug/L		107	(80%-120%)		03/15/18 15:31
Uranium	50.0			49.7	ug/L		99.4	(80%-120%)		
Zinc	50.0			53.1	ug/L		106	(80%-120%)		03/13/18 20:27
QC1203982155 MB										
Aluminum			U	19.3	ug/L					03/13/18 20:24

GEL LABORATORIES LLC
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QC Summary

Workorder: **444994**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS											
Batch 1743682											
Arsenic				U	2.00	ug/L				BAJ	03/13/18 20:24
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 15:29
Uranium				U	0.067	ug/L					
Zinc				U	3.30	ug/L					03/13/18 20:24
QC1203982157 444976013 MS											
Aluminum	2000	U	19.3		1960	ug/L	97.9	(75%-125%)			03/13/18 20:33
Arsenic	50.0		5.86		57.7	ug/L	104	(75%-125%)			
Cadmium	50.0	U	0.300		50.8	ug/L	101	(75%-125%)			
Chromium	50.0	B	3.84		51.4	ug/L	95.2	(75%-125%)			

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QC Summary

Workorder: **444994**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS											
Batch 1743682											
Cobalt	50.0	U	0.300		54.0	ug/L		108	(75%-125%)	BAJ	03/13/18 20:33
Copper	50.0	U	0.300		48.5	ug/L		96.5	(75%-125%)		
Manganese	50.0	B	1.03		49.7	ug/L		97.4	(75%-125%)		
Molybdenum	50.0		5.86		59.5	ug/L		107	(75%-125%)		
Nickel	50.0		6.50		56.9	ug/L		101	(75%-125%)		
Selenium	50.0	B	3.77		59.3	ug/L		111	(75%-125%)		03/15/18 15:36
Uranium	50.0		53.2		108	ug/L		110	(75%-125%)		
Zinc	50.0	U	3.30		51.2	ug/L		99.7	(75%-125%)		03/13/18 20:33
QC1203982158 444976013 MSD											
Aluminum	2000	U	19.3		1990	ug/L	1.4	99.3	(0%-20%)		03/13/18 20:37
Arsenic	50.0		5.86		59.1	ug/L	2.36	106	(0%-20%)		
Cadmium	50.0	U	0.300		50.4	ug/L	0.793	101	(0%-20%)		
Chromium	50.0	B	3.84		52.5	ug/L	2.08	97.4	(0%-20%)		
Cobalt	50.0	U	0.300		51.2	ug/L	5.37	102	(0%-20%)		
Copper	50.0	U	0.300		49.9	ug/L	2.81	99.2	(0%-20%)		
Manganese	50.0	B	1.03		48.6	ug/L	2.34	95.1	(0%-20%)		

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QC Summary

Workorder: **444994**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS											
Batch 1743682											
Molybdenum	50.0		5.86		58.3	ug/L	2.03	105	(0%-20%)	BAJ	03/13/18 20:37
Nickel	50.0		6.50		59.2	ug/L	4	105	(0%-20%)		
Selenium	50.0	B	3.77		58.8	ug/L	0.899	110	(0%-20%)		03/15/18 15:38
Uranium	50.0		53.2		106	ug/L	2.35	105	(0%-20%)		
Zinc	50.0	U	3.30		50.8	ug/L	0.867	98.8	(0%-20%)		03/13/18 20:37
QC1203982159 444976013 SDILT											
Aluminum		U	4.01	DU	96.5	ug/L	N/A		(0%-20%)		03/13/18 20:40
Arsenic			5.86	DU	10.0	ug/L	N/A		(0%-20%)		
Cadmium		U	0.026	DU	1.50	ug/L	N/A		(0%-20%)		
Chromium		B	3.84	DU	15.0	ug/L	N/A		(0%-20%)		
Cobalt		U	0.199	DU	1.50	ug/L	N/A		(0%-20%)		
Copper		U	0.272	DU	1.50	ug/L	N/A		(0%-20%)		
Manganese		B	1.03	DU	5.00	ug/L	N/A		(0%-20%)		
Molybdenum			5.86	D	1.09	ug/L	6.76		(0%-20%)		
Nickel			6.50	BD	1.19	ug/L	8.38		(0%-20%)		
Selenium		B	3.77	DU	10.0	ug/L	N/A		(0%-20%)		03/15/18 15:40

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

QC Summary

Workorder: **444994**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS										
Batch 1743682										
Uranium		53.2	D	9.97	ug/L	6.24		(0%-20%)	BAJ	03/15/18 15:40
Zinc	U	1.36	DU	16.5	ug/L	N/A		(0%-20%)		03/13/18 20:40

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.

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL444994
Work Order #: 444994

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
444994001	B3HVY6
444994002	B3HW81
444994003	B3HW89
444994004	B3HVY2
444994005	B3HVX1
444994007	B3HVX5
444994008	B3HVX8
444994009	B3HW85
444994010	B3HVW7
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.

Product: **TC99_EIE_LSC: COMMON**
Analytical Method: TC99_EIE_LSC
Analytical Procedure: GL-RAD-A-059 REV# 5
Analytical Batch: 1743792

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

GEL Sample ID#	Client Sample Identification
444994001	B3HVY6
444994002	B3HW81
444994003	B3HW89
444994004	B3HVY2
444994005	B3HVX1

444994007	B3HVX5
444994008	B3HVX8
444994009	B3HW85
444994010	B3HVW7
1203982370	Method Blank (MB)
1203982371	444659004(NonSDG) Sample Duplicate (DUP)
1203982372	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 1203982372 (LCS) was recounted due to low recovery. The recount is reported. Samples 444994002 (B3HW81), 444994003 (B3HW89), 444994005 (B3HVX1), 444994007 (B3HVX5), 444994008 (B3HVX8), 444994009 (B3HW85) and 444994010 (B3HVW7) were recounted to verify sample results. Recounts are reported.

Product: **TRITIUM_DIST_LSC: COMMON**
Analytical Method: TRITIUM_DIST_LSC
Analytical Procedure: GL-RAD-A-002 REV# 22
Analytical Batch: 1743804

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

GEL Sample ID#	Client Sample Identification
444994001	B3HVY6
444994002	B3HW81
444994003	B3HW89
444994004	B3HVY2
444994005	B3HVX1
444994007	B3HVX5
444994008	B3HVX8
444994009	B3HW85
444994010	B3HVW7
1203982401	Method Blank (MB)
1203982402	444994001(B3HVY6) Sample Duplicate (DUP)
1203982403	444994001(B3HVY6) Matrix Spike (MS)
1203982404	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 1203982404 (LCS) was recounted due to low recovery. The second recount is reported.

Miscellaneous Information

Additional Comments
The matrix spike, 1203982403 (B3HVY6MS), aliquot was reduced to conserve sample volume.

Product: **C14_LSC: COMMON**
Analytical Method: C14_LSC
Analytical Procedure: GL-RAD-A-003 REV# 15
Analytical Batch: 1743814

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

GEL Sample ID#	Client Sample Identification
444994001	B3HVY6
444994002	B3HW81
444994003	B3HW89
444994004	B3HVY2
444994005	B3HVX1
444994007	B3HVX5
444994008	B3HVX8
444994009	B3HW85
444994010	B3HVW7
1203982444	Method Blank (MB)
1203982445	444994001(B3HVY6) Sample Duplicate (DUP)
1203982446	444994001(B3HVY6) Matrix Spike (MS)
1203982447	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.

Miscellaneous Information

Additional Comments
The matrix spike, 1203982446 (B3HVY6MS), aliquot was reduced to conserve sample volume.

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: GEL444994 GEL Work Order: 444994

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.

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: 27 MAR 2018 **Title: Analyst II**

Sample Data Summary

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL444994	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	444994001	**Date Collected:**	03/01/2018 08:40	**Matrix:**	WATER
		Date Received:	03/02/2018 09:05		
Client ID:	B3HVY6			**Prep Basis:**	"As Received"
Batch ID:	1743967	**Method:**	DOE EML HASL-300,I-01 Mo	**SOP Ref:**	GL-RAD-A-006
Run Date:	03/08/2018 08:52	**Analyst:**	BSW1	**Instrument:**	GAM05
Data File:	I444994001.CNF;1	**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	-0.0525	pCi/L	+/-0.312	0.313	0.503	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:	**GEL444994**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**444994001**	**Date Collected:**	**03/01/2018 08:40**	**Matrix:**	**WATER**
		Date Received:	**03/02/2018 09:05**		
Client ID:	**B3HVY6**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743792**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/20/2018 16:08**	**Analyst:**	**CXS7**	**Instrument:**	**LSCMOCHA**
Data File:	**E1743792R3.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**20 min**
Prep Batch:	**1743792**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/15/2018 13:27**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	3.97	pCi/L	+/-20.7	20.7	35.8	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	4.61E+05	4.82E+05	CPM	95.7	(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.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL444994	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	444994001	**Date Collected:**	03/01/2018 08:40	**Matrix:**	WATER
		Date Received:	03/02/2018 09:05		
Client ID:	B3HVY6			**Prep Basis:**	"As Received"
Batch ID:	1743804	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/08/2018 06:36	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1743804R2.xls	**Aliquot:**	50 mL	**Count Time:**	50 min
Prep Batch:	1743804	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/07/2018 08:02				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	64.0	pCi/L	+/-177	178	305	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:	GEL444994	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	444994001	**Date Collected:**	03/01/2018 08:40	**Matrix:**	WATER
		Date Received:	03/02/2018 09:05		
Client ID:	B3HVY6			**Prep Basis:**	"As Received"
Batch ID:	1743814	**Method:**	C14_LSC	**SOP Ref:**	GL-RAD-A-003
Run Date:	03/08/2018 02:41	**Analyst:**	BXM4	**Instrument:**	LSCGREEN
Data File:	C1743814.xls	**Aliquot:**	100.52 mL	**Count Time:**	15 min
Prep Batch:	1743814	**Prep Method:**	EPA EERF C-01 Modified		
Prep Date:	03/06/2018 13:43				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	7.83	pCi/L	+/-19.3	19.4	33.2	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.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL444994**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**444994002**	**Date Collected:**	**03/01/2018 10:50**	**Matrix:**	**WATER**
		Date Received:	**03/02/2018 09:05**		
Client ID:	**B3HW81**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743967**	**Method:**	**DOE EML HASL-300,I-01 Mo**	**SOP Ref:**	**GL-RAD-A-006**
Run Date:	**03/08/2018 08:53**	**Analyst:**	**BSW1**	**Instrument:**	**XRAY1**
Data File:	**I444994002.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	0.173	pCi/L	+/-0.351	0.360	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.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL444994**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**444994002**	**Date Collected:**	**03/01/2018 10:50**	**Matrix:**	**WATER**
		Date Received:	**03/02/2018 09:05**		
Client ID:	**B3HW81**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743792**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/21/2018 10:04**	**Analyst:**	**CXS7**	**Instrument:**	**LSCMOCHA**
Data File:	**E1743792R3.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**20 min**
Prep Batch:	**1743792**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/15/2018 13:27**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		125	pCi/L	+/-25.0	28.6	35.9	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	4.70E+05	4.82E+05	CPM	97.5	(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.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL444994	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	444994002	**Date Collected:**	03/01/2018 10:50	**Matrix:**	WATER
		Date Received:	03/02/2018 09:05		
Client ID:	B3HW81			**Prep Basis:**	"As Received"
Batch ID:	1743804	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/08/2018 07:28	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1743804R2.xls	**Aliquot:**	50 mL	**Count Time:**	50 min
Prep Batch:	1743804	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/07/2018 08:02				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		4930	pCi/L	+/-325	1010	295	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:	GEL444994	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	444994002	**Date Collected:**	03/01/2018 10:50	**Matrix:**	WATER
		Date Received:	03/02/2018 09:05		
Client ID:	B3HW81			**Prep Basis:**	"As Received"
Batch ID:	1743814	**Method:**	C14_LSC	**SOP Ref:**	GL-RAD-A-003
Run Date:	03/08/2018 02:58	**Analyst:**	BXM4	**Instrument:**	LSCGREEN
Data File:	C1743814.xls	**Aliquot:**	100.36 mL	**Count Time:**	15 min
Prep Batch:	1743814	**Prep Method:**	EPA EERF C-01 Modified		
Prep Date:	03/06/2018 13:43				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	0.622	pCi/L	+/-18.9	18.9	32.9	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:	GEL444994	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	444994003	**Date Collected:**	03/01/2018 10:34	**Matrix:**	WATER
		Date Received:	03/02/2018 09:05		
Client ID:	B3HW89			**Prep Basis:**	"As Received"
Batch ID:	1743967	**Method:**	DOE EML HASL-300,I-01 Mo	**SOP Ref:**	GL-RAD-A-006
Run Date:	03/08/2018 08:53	**Analyst:**	BSW1	**Instrument:**	XRAY2
Data File:	I444994003.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	0.491	pCi/L	+/-0.574	0.576	0.795	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:	**GEL444994**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**444994003**	**Date Collected:**	**03/01/2018 10:34**	**Matrix:**	**WATER**
		Date Received:	**03/02/2018 09:05**		
Client ID:	**B3HW89**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743792**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/21/2018 10:25**	**Analyst:**	**CXS7**	**Instrument:**	**LSCMOCHA**
Data File:	**E1743792R3.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**20 min**
Prep Batch:	**1743792**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/15/2018 13:27**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		362	pCi/L	+/-32.6	51.6	37.6	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	4.53E+05	4.82E+05	CPM	93.9	(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:	GEL444994	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	444994003	**Date Collected:**	03/01/2018 10:34	**Matrix:**	WATER
		Date Received:	03/02/2018 09:05		
Client ID:	B3HW89			**Prep Basis:**	"As Received"
Batch ID:	1743804	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/08/2018 08:20	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1743804R2.xls	**Aliquot:**	50 mL	**Count Time:**	50 min
Prep Batch:	1743804	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/07/2018 08:02				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		8940	pCi/L	+/-418	1780	304	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:	GEL444994	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	444994003	**Date Collected:**	03/01/2018 10:34	**Matrix:**	WATER
		Date Received:	03/02/2018 09:05		
Client ID:	B3HW89			**Prep Basis:**	"As Received"
Batch ID:	1743814	**Method:**	C14_LSC	**SOP Ref:**	GL-RAD-A-003
Run Date:	03/08/2018 03:14	**Analyst:**	BXM4	**Instrument:**	LSCGREEN
Data File:	C1743814.xls	**Aliquot:**	100.53 mL	**Count Time:**	15 min
Prep Batch:	1743814	**Prep Method:**	EPA EERF C-01 Modified		
Prep Date:	03/06/2018 13:43				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	2.16	pCi/L	+/-19.1	19.1	33.1	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.

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Certificate of Analysis
Sample Summary

SDG Number:	GEL444994	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	444994004	**Date Collected:**	03/01/2018 08:24	**Matrix:**	WATER
		Date Received:	03/02/2018 09:05		
Client ID:	B3HVY2			**Prep Basis:**	"As Received"
Batch ID:	1743967	**Method:**	DOE EML HASL-300,I-01 Mo	**SOP Ref:**	GL-RAD-A-006
Run Date:	03/08/2018 08:53	**Analyst:**	BSW1	**Instrument:**	XRAY4
Data File:	I444994004.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	-0.317	pCi/L	+/-0.365	0.393	0.569	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:	**GEL444994**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**444994004**	**Date Collected:**	**03/01/2018 08:24**	**Matrix:**	**WATER**
		Date Received:	**03/02/2018 09:05**		
Client ID:	**B3HVY2**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743792**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/20/2018 17:13**	**Analyst:**	**CXS7**	**Instrument:**	**LSCMOCHA**
Data File:	**E1743792R3.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**20 min**
Prep Batch:	**1743792**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/15/2018 13:27**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	13.6	pCi/L	+/-22.0	22.1	37.4	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	4.72E+05	4.82E+05	CPM	97.8	(30%-105%)

Comments:

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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:	GEL444994	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	444994004	**Date Collected:**	03/01/2018 08:24	**Matrix:**	WATER
		Date Received:	03/02/2018 09:05		
Client ID:	B3HVY2			**Prep Basis:**	"As Received"
Batch ID:	1743804	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/08/2018 09:12	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1743804R2.xls	**Aliquot:**	50 mL	**Count Time:**	50 min
Prep Batch:	1743804	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/07/2018 08:02				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-83.6	pCi/L	+/-171	171	307	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:	GEL444994	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	444994004	**Date Collected:**	03/01/2018 08:24	**Matrix:**	WATER
		Date Received:	03/02/2018 09:05		
Client ID:	B3HVY2			**Prep Basis:**	"As Received"
Batch ID:	1743814	**Method:**	C14_LSC	**SOP Ref:**	GL-RAD-A-003
Run Date:	03/08/2018 03:30	**Analyst:**	BXM4	**Instrument:**	LSCGREEN
Data File:	C1743814.xls	**Aliquot:**	100.21 mL	**Count Time:**	15 min
Prep Batch:	1743814	**Prep Method:**	EPA EERF C-01 Modified		
Prep Date:	03/06/2018 13:43				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	8.38	pCi/L	+/-19.3	19.4	33.1	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.

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Certificate of Analysis
Sample Summary

SDG Number:	GEL444994	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	444994005	**Date Collected:**	03/01/2018 09:01	**Matrix:**	WATER
		Date Received:	03/02/2018 09:05		
Client ID:	B3HVX1			**Prep Basis:**	"As Received"
Batch ID:	1743967	**Method:**	DOE EML HASL-300,I-01 Mo	**SOP Ref:**	GL-RAD-A-006
Run Date:	03/08/2018 08:54	**Analyst:**	BSW1	**Instrument:**	XRAY5
Data File:	I444994005.CNF;2	**Aliquot:**	1.2 L	**Count Time:**	180 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	0.105	pCi/L	+/-0.497	0.499	0.912	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:	**GEL444994**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**444994005**	**Date Collected:**	**03/01/2018 09:01**	**Matrix:**	**WATER**
		Date Received:	**03/02/2018 09:05**		
Client ID:	**B3HVX1**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743792**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/21/2018 10:46**	**Analyst:**	**CXS7**	**Instrument:**	**LSCMOCHA**
Data File:	**E1743792R3.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**20 min**
Prep Batch:	**1743792**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/15/2018 13:27**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		424	pCi/L	+/-34.1	57.9	37.2	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	4.46E+05	4.82E+05	CPM	92.5	(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:	GEL444994	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	444994005	**Date Collected:**	03/01/2018 09:01	**Matrix:**	WATER
		Date Received:	03/02/2018 09:05		
Client ID:	B3HVX1			**Prep Basis:**	"As Received"
Batch ID:	1743804	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/08/2018 10:04	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1743804R2.xls	**Aliquot:**	50 mL	**Count Time:**	50 min
Prep Batch:	1743804	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/07/2018 08:02				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		1550	pCi/L	+/-240	383	312	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:	**GEL444994**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**444994005**	**Date Collected:**	**03/01/2018 09:01**	**Matrix:**	**WATER**
		Date Received:	**03/02/2018 09:05**		
Client ID:	**B3HVX1**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743814**	**Method:**	**C14_LSC**	**SOP Ref:**	**GL-RAD-A-003**
Run Date:	**03/08/2018 03:47**	**Analyst:**	**BXM4**	**Instrument:**	**LSCGREEN**
Data File:	**C1743814.xls**	**Aliquot:**	**100.61 mL**	**Count Time:**	**15 min**
Prep Batch:	**1743814**	**Prep Method:**	**EPA EERF C-01 Modified**		
Prep Date:	**03/06/2018 13:43**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	5.47	pCi/L	+/-19.0	19.1	32.8	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:	GEL444994	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	444994007	**Date Collected:**	03/01/2018 09:01	**Matrix:**	WATER
		Date Received:	03/02/2018 09:05		
Client ID:	B3HVX5			**Prep Basis:**	"As Received"
Batch ID:	1743967	**Method:**	DOE EML HASL-300,I-01 Mo	**SOP Ref:**	GL-RAD-A-006
Run Date:	03/08/2018 08:54	**Analyst:**	BSW1	**Instrument:**	XRAY6
Data File:	I444994007.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	0.148	pCi/L	+/-0.457	0.462	0.921	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:	**GEL444994**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**444994007**	**Date Collected:**	**03/01/2018 09:01**	**Matrix:**	**WATER**
		Date Received:	**03/02/2018 09:05**		
Client ID:	**B3HVX5**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743792**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/21/2018 11:08**	**Analyst:**	**CXS7**	**Instrument:**	**LSCMOCHA**
Data File:	**E1743792R3.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**20 min**
Prep Batch:	**1743792**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/15/2018 13:27**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		466	pCi/L	+/-34.3	61.8	36.1	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	4.59E+05	4.82E+05	CPM	95.2	(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.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL444994**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**444994007**	**Date Collected:**	**03/01/2018 09:01**	**Matrix:**	**WATER**
		Date Received:	**03/02/2018 09:05**		
Client ID:	**B3HVX5**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743804**	**Method:**	**TRITIUM_DIST_LSC**	**SOP Ref:**	**GL-RAD-A-002**
Run Date:	**03/08/2018 10:56**	**Analyst:**	**MXH8**	**Instrument:**	**LSCBLUE**
Data File:	**T1743804R2.xls**	**Aliquot:**	**50 mL**	**Count Time:**	**50 min**
Prep Batch:	**1743804**	**Prep Method:**	**EPA 906.0 Modified**		
Prep Date:	**03/07/2018 08:02**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		1240	pCi/L	+/-219	325	295	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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Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL444994	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	444994007	**Date Collected:**	03/01/2018 09:01	**Matrix:**	WATER
		Date Received:	03/02/2018 09:05		
Client ID:	B3HVX5			**Prep Basis:**	"As Received"
Batch ID:	1743814	**Method:**	C14_LSC	**SOP Ref:**	GL-RAD-A-003
Run Date:	03/08/2018 04:03	**Analyst:**	BXM4	**Instrument:**	LSCGREEN
Data File:	C1743814.xls	**Aliquot:**	100.65 mL	**Count Time:**	15 min
Prep Batch:	1743814	**Prep Method:**	EPA EERF C-01 Modified		
Prep Date:	03/06/2018 13:43				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	11.9	pCi/L	+/-19.4	19.5	32.9	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).
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Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL444994**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**444994008**	**Date Collected:**	**03/01/2018 09:48**	**Matrix:**	**WATER**
		Date Received:	**03/02/2018 09:05**		
Client ID:	**B3HVX8**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743967**	**Method:**	**DOE EML HASL-300,I-01 Mo**	**SOP Ref:**	**GL-RAD-A-006**
Run Date:	**03/08/2018 14:36**	**Analyst:**	**BSW1**	**Instrument:**	**GAM21**
Data File:	**I444994008.CNF;1**	**Aliquot:**	**1.2 L**	**Count Time:**	**180 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	0.316	pCi/L	+/-0.306	0.339	0.590	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).
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Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL444994**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**444994008**	**Date Collected:**	**03/01/2018 09:48**	**Matrix:**	**WATER**
		Date Received:	**03/02/2018 09:05**		
Client ID:	**B3HVX8**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743792**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/21/2018 11:29**	**Analyst:**	**CXS7**	**Instrument:**	**LSCMOCHA**
Data File:	**E1743792R3.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**20 min**
Prep Batch:	**1743792**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/15/2018 13:27**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		260	pCi/L	+/-29.3	41.0	36.5	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	4.65E+05	4.82E+05	CPM	96.5	(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.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL444994	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	444994008	**Date Collected:**	03/01/2018 09:48	**Matrix:**	WATER
		Date Received:	03/02/2018 09:05		
Client ID:	B3HVX8			**Prep Basis:**	"As Received"
Batch ID:	1743804	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/08/2018 11:48	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1743804R2.xls	**Aliquot:**	50 mL	**Count Time:**	50 min
Prep Batch:	1743804	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/07/2018 08:02				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		1080	pCi/L	+/-225	307	315	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:	GEL444994	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	444994008	**Date Collected:**	03/01/2018 09:48	**Matrix:**	WATER
		Date Received:	03/02/2018 09:05		
Client ID:	B3HVX8			**Prep Basis:**	"As Received"
Batch ID:	1743814	**Method:**	C14_LSC	**SOP Ref:**	GL-RAD-A-003
Run Date:	03/08/2018 04:19	**Analyst:**	BXM4	**Instrument:**	LSCGREEN
Data File:	C1743814.xls	**Aliquot:**	100.94 mL	**Count Time:**	15 min
Prep Batch:	1743814	**Prep Method:**	EPA EERF C-01 Modified		
Prep Date:	03/06/2018 13:43				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-3.67	pCi/L	+/-18.7	18.7	32.9	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:	GEL444994	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	444994009	**Date Collected:**	03/01/2018 11:02	**Matrix:**	WATER
		Date Received:	03/02/2018 09:05		
Client ID:	B3HW85			**Prep Basis:**	"As Received"
Batch ID:	1743967	**Method:**	DOE EML HASL-300,I-01 Mo	**SOP Ref:**	GL-RAD-A-006
Run Date:	03/08/2018 14:36	**Analyst:**	BSW1	**Instrument:**	XRAY1
Data File:	I444994009.CNF;1	**Aliquot:**	1.2 L	**Count Time:**	180 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		0.860	pCi/L	+/-0.485	0.492	0.417	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:	**GEL444994**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**444994009**	**Date Collected:**	**03/01/2018 11:02**	**Matrix:**	**WATER**
		Date Received:	**03/02/2018 09:05**		
Client ID:	**B3HW85**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743792**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/21/2018 11:50**	**Analyst:**	**CXS7**	**Instrument:**	**LSCMOCHA**
Data File:	**E1743792R3.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**20 min**
Prep Batch:	**1743792**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/15/2018 13:27**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		330	pCi/L	+/-30.6	47.5	35.5	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	4.73E+05	4.82E+05	CPM	98	(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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Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL444994	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	444994009	**Date Collected:**	03/01/2018 11:02	**Matrix:**	WATER
		Date Received:	03/02/2018 09:05		
Client ID:	B3HW85			**Prep Basis:**	"As Received"
Batch ID:	1743804	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/08/2018 12:40	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1743804R2.xls	**Aliquot:**	50 mL	**Count Time:**	50 min
Prep Batch:	1743804	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/07/2018 08:02				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		10000	pCi/L	+/-440	1980	306	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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Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL444994**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**444994009**	**Date Collected:**	**03/01/2018 11:02**	**Matrix:**	**WATER**
		Date Received:	**03/02/2018 09:05**		
Client ID:	**B3HW85**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743814**	**Method:**	**C14_LSC**	**SOP Ref:**	**GL-RAD-A-003**
Run Date:	**03/08/2018 04:36**	**Analyst:**	**BXM4**	**Instrument:**	**LSCGREEN**
Data File:	**C1743814.xls**	**Aliquot:**	**100.04 mL**	**Count Time:**	**15 min**
Prep Batch:	**1743814**	**Prep Method:**	**EPA EERF C-01 Modified**		
Prep Date:	**03/06/2018 13:43**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	7.46	pCi/L	+/-19.3	19.3	33.1	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).
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Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL444994**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**444994010**	**Date Collected:**	**03/01/2018 10:06**	**Matrix:**	**WATER**
		Date Received:	**03/02/2018 09:05**		
Client ID:	**B3HVW7**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743967**	**Method:**	**DOE EML HASL-300,I-01 Mo**	**SOP Ref:**	**GL-RAD-A-006**
Run Date:	**03/08/2018 14:37**	**Analyst:**	**BSW1**	**Instrument:**	**XRAY5**
Data File:	**I444994010.CNF;1**	**Aliquot:**	**1.2 L**	**Count Time:**	**180 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	-0.0924	pCi/L	+/-0.340	0.342	0.574	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:	**GEL444994**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16045**
Lab Sample ID:	**444994010**	**Date Collected:**	**03/01/2018 10:06**	**Matrix:**	**WATER**
		Date Received:	**03/02/2018 09:05**		
Client ID:	**B3HVW7**			**Prep Basis:**	**"As Received"**
Batch ID:	**1743792**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/21/2018 12:12**	**Analyst:**	**CXS7**	**Instrument:**	**LSCMOCHA**
Data File:	**E1743792R3.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**20 min**
Prep Batch:	**1743792**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/15/2018 13:27**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		86.5	pCi/L	+/-25.4	27.1	38.8	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	4.27E+05	4.82E+05	CPM	88.6	(30%-105%)

Comments:

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TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
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Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL444994	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	444994010	**Date Collected:**	03/01/2018 10:06	**Matrix:**	WATER
		Date Received:	03/02/2018 09:05		
Client ID:	B3HVW7			**Prep Basis:**	"As Received"
Batch ID:	1743804	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/08/2018 13:32	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1743804R2.xls	**Aliquot:**	50 mL	**Count Time:**	50 min
Prep Batch:	1743804	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/07/2018 08:02				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		350	pCi/L	+/-196	207	316	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:	GEL444994	**Client:**	CPRC001	**Project:**	CPRC0F16045
Lab Sample ID:	444994010	**Date Collected:**	03/01/2018 10:06	**Matrix:**	WATER
		Date Received:	03/02/2018 09:05		
Client ID:	B3HVW7			**Prep Basis:**	"As Received"
Batch ID:	1743814	**Method:**	C14_LSC	**SOP Ref:**	GL-RAD-A-003
Run Date:	03/08/2018 04:52	**Analyst:**	BXM4	**Instrument:**	LSCGREEN
Data File:	C1743814.xls	**Aliquot:**	100.54 mL	**Count Time:**	15 min
Prep Batch:	1743814	**Prep Method:**	EPA EERF C-01 Modified		
Prep Date:	03/06/2018 13:43				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-2.38	pCi/L	+/-18.8	18.8	33.0	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.

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
Page 1 of 3

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **444994**

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 1743792											
QC1203982370 MB											
Technetium-99				U	25.1	pCi/L				CXS7	03/20/1819:20
Uncert:					+/-22.0						
TPU:					+/-22.2						
**Technetium-99m Tracer	4.82E+05				4.54E+05	CPM	REC:	94	(30%-105%)		
QC1203982371 444659004 DUP											
Technetium-99		U	28.8	U	11.4	pCi/L					03/20/1819:42
Uncert:			+/-22.4		+/-21.2		RPD:	0	N/A		
TPU:			+/-22.6		+/-21.2		RER:	1.1	(0-2)		
**Technetium-99m Tracer	4.82E+05		4.59E+05		4.68E+05	CPM	REC:	97	(30%-105%)		
QC1203982372 LCS											
Technetium-99	1780				1430	pCi/L	REC:	80	(80%-120%)		03/23/1822:29
Uncert:					+/-63.9						
TPU:					+/-170						
**Technetium-99m Tracer	4.82E+05				4.59E+05	CPM	REC:	95	(30%-105%)		
Batch 1743804											
QC1203982401 MB											
Tritium				U	-40.3	pCi/L				MXH8	03/08/1814:24
Uncert:					+/-179						
TPU:					+/-179						
QC1203982402 444994001 DUP											
Tritium		U	64.0	U	-47.2	pCi/L					03/08/1815:16
Uncert:			+/-177		+/-176		RPD:	0	N/A		
TPU:			+/-178		+/-176		RER:	0.872	(0-2)		
QC1203982403 444994001 MS											
Tritium	5150	U	64.0		4910	pCi/L	REC:	95	(75%-125%)		03/08/1816:08

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

QC Summary

Workorder: 444994

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Liquid Scintillation									
Batch 1743804									
Uncert:		+/-177		+/-895					
TPU:		+/-178		+/-1300					
QC1203982404 LCS									
Tritium	2570			2060	pCi/L	REC: 80	(80%-120%)		03/11/1811:12
Uncert:				+/-451					
TPU:				+/-602					
Batch 1743814									
QC1203982444 MB									
Carbon-14			U	5.12	pCi/L			BXM4	03/08/1805:08
Uncert:				+/-19.0					
TPU:				+/-19.0					
QC1203982445 444994001 DUP									
Carbon-14	U	7.83	U	-5.43	pCi/L				03/08/1805:24
Uncert:		+/-19.3		+/-18.7		RPD: 0	N/A		
TPU:		+/-19.4		+/-18.7		RER: 0.965	(0-2)		
QC1203982446 444994001 MS									
Carbon-14	3730 U	7.83		3650	pCi/L	REC: 98	(75%-125%)		03/08/1805:41
Uncert:		+/-19.3		+/-198					
TPU:		+/-19.4		+/-707					
QC1203982447 LCS									
Carbon-14	744			707	pCi/L	REC: 95	(80%-120%)		03/08/1805:57
Uncert:				+/-39.1					
TPU:				+/-137					

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
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.
S	Reported value determined by the Method of Standard Additions (MSA)
T	Spike and/or spike duplicate sample recovery is outside control limits.

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QC Summary

Workorder: **444994**

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

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.