



March 29, 2018

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

Re: CHPRC SAF F16-045
Work Order: 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 original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

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

Sincerely,

Anna Dupree for
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

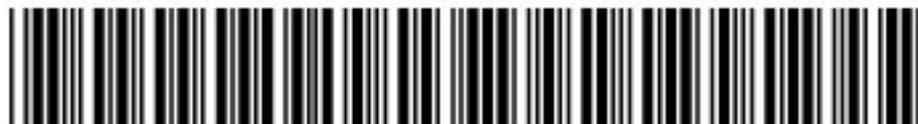


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Case Narrative

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

March 29, 2018

Laboratory Identification:

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

Summary

Sample receipt

The sample(s) arrived at GEL Laboratories, LLC, Charleston, South Carolina on March 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:

<u>Laboratory Identification</u>	<u>Sample Description</u>
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.



Anna Dupree for
Heather Shaffer
Project Manager

Technical Case Narrative
CH2M Hill 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 (B3HVV6MS), 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 (B3HVV6MS), 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-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. 771671874829			
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.		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	
SPECIAL HANDLING AND/OR STORAGE N/A		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_LE PS_GS: COMMON;		
SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B3HVV6	N/A	WATER	MAR 01 2018	0840	✓	✓	✓	✓	

444994

3/29/2018

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
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	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};
Dan Woehle CHPRC	MAR 01 2018 1400	FEDEX		
	Fed Ex	C. Tarplin CHPRC	3/2/18 0905	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME	

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CH2M Hill 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.		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_LE PS_GS: COMMON;
SPECIAL HANDLING AND/OR STORAGE N/A		444994							
SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B3HW81	N/A	WATER	MAR 01 2018	1050	✓	✓	✓	✓	✓

3/29/2018

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
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	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};
Lesly Wall CHPRC	MAR 01 2018 1400	FEDEX		
	Fed Ex	C. Tarplin	3/2/18 0905	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME

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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.		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_LE PS_GS: COMMON;	
		SPECIAL HANDLING AND/OR STORAGE N/A								
SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME						
B3HW89	N/A	WATER	MAR 01 2018	0934	✓	✓	✓	✓	✓	

444994

1034 KF 3-1-18

3/29/2018

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
Kevin Patterson CHPRC	MAR 01 2018 1130	Lesly Will CHPRC	MAR 01 2018 1130	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};	
Lesly Will CHPRC	MAR 01 2018 1400	FEDEX			
		G. Tamplin Center	3/2/18 0905		
FINAL SAMPLE DISPOSITION		DISPOSAL METHOD		DISPOSED BY	

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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		
ICE CHEST NO. 605-738		FIELD LOGBOOK NO. HNF-N-49119		ACTUAL SAMPLE DEPTH N/A	PURCHASE ORDER/CHARGE CODE 304235		ORIGINAL 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 regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		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
	SPECIAL HANDLING AND/OR STORAGE N/A		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_LE PS_GS: COMMON;
SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B3HVY2	N/A	WATER	MAR 0 1 2018	0804	✓	✓	✓	✓	✓

444994

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CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	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};	
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		

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FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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				
ICE CHEST NO. GWS-738			FIELD LOGBOOK NO. HNF-N-49119		ACTUAL SAMPLE DEPTH N/A		PURCHASE ORDER/CHARGE CODE 304235		ORIGINAL 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.		PRESERVATION	HCl or H2SO4 to pH <2/Cool <=6C	HNO3 to pH <2	HNO3 to pH <2	None	None	444994	
		HOLDING TIME	14 Days	6 Months	6 Months	6 Months	6 Months	6 Months		
		TYPE OF CONTAINER	aGs*	G/P	G/P	P	G/P	G/P		
		NO. OF CONTAINER(S)	4	1	1	1	4	4		
		VOLUME	40mL	500mL	500mL	1L	1L	1L		
		SPECIAL HANDLING AND/OR STORAGE N/A	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_LE PS_GS: COMMON;		
SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME						
B3HVX1	N/A	WATER	MAR 01 2018	0901	✓	✓	✓	✓	✓	

3/29/2018

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
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	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};	
Dan Woehle CHPRC	MAR 01 2018 1400	FEDEX			
		C-Tamplin	3/2/18 0905		
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	

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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-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.	PRESERVATION HCl or H2SO4 to pH <2/Cool <=6C
		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 01 2018	0700	✓

3/29/2018

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM Kevin Patterson CHPRC		DATE/TIME MAR 01 2018 0910	SIGN/ PRINT NAMES RECEIVED BY/STORED IN Dan Woehle CHPRC		DATE/TIME MAR 01 2018 0910	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};
Dan Woehle CHPRC		DATE/TIME MAR 01 2018 1400	FEDEX			
			C-Tarplin Center		DATE/TIME 3/2/18 0905	

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME
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83105

CH2M Hill 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. 6605-738		FIELD LOGBOOK NO. HINE-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.		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
			SPECIAL HANDLING AND/OR STORAGE N/A		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	TC99_EIE_LSC: COMMON;
				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_LE PS_GS: COMMON;	
SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B3HVX5	N/A	WATER	MAR 01 2018	0901	✓	✓	✓	✓	

444994

3/29/2018

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
Kevin Patterson CHPRC	MAR 01 2018 0905	Dan Woehle CHPRC	MAR 01 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}; (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};	
Dan Woehle CHPRC	MAR 01 2018 1400	FEDEX			
		C. Tarplin	3/2/18 0905		
FINAL SAMPLE DISPOSITION		DISPOSAL METHOD		DISPOSED BY	

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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		REQUIRED TAT 30 Days		
SAMPLING LOCATION Valve V03-YE18, 289TB, 299-W12-3		PROJECT DESIGNATION 200W Pump & Treat - Extraction Well Water Sampling		SAF NO. F16-045		ORIGINAL		
ICE CHEST NO. GWS-736		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. 9100		BILL OF LADING/AIR BILL NO. 77167706 6502				
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.	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	
	SPECIAL HANDLING AND/OR STORAGE N/A	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_LE PS_GS: COMMON;	
SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B3HVX8	N/A	WATER	MAR 01 2018	0948	✓	✓	✓	

444994

3/29/2018

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
Kevin Patterson CHPRC	MAR 01 2018 1130	Troy Bacon CHPRC	MAR 01 2018 1130	TRVL-18-083	
Troy Bacon CHPRC	MAR 01 2018 1400	FEDEX		(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};	
	Fed Ex	C. Tarplin	3/2/18 0905	(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	

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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-49119		ACTUAL SAMPLE DEPTH N/A		PURCHASE ORDER/CHARGE CODE 304235		METHOD OF SHIPMENT FEDERAL EXPRESS	
SHIPPED TO GEL Laboratories, LLC		OFF SITE PROPERTY NO. 9100				BILL OF LADING/AIR BILL NO. 771677066562			
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 regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		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			
SPECIAL HANDLING AND/OR STORAGE N/A		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_LE PS_GS: COMMON;			
SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B3HW85	N/A	WATER	MAR 01 2018	1102	✓	✓	✓	✓	

444994

3/29/2018

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM Kevin Patterson CHPRC		DATE/TIME MAR 01 2018 1130	SIGN/ PRINT NAMES RECEIVED BY/STORED IN Troy Bacon CHPRC		DATE/TIME MAR 01 2018 1130	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};
Troy Bacon CHPRC		MAR 01 2018 1400	FEDEX		3/2/18 0905	
Fed Ex			C. Farplin Center			
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY			DATE/TIME	

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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. HNE-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. 9100			BILL OF LADING/AIR BILL NO. 771677066562				
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.		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_LE PS_GS: COMMON;
SPECIAL HANDLING AND/OR STORAGE N/A		444994							
SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B3HWW7	N/A	WATER	MAR 01 2018	1006	✓	✓	✓	✓	✓

3/29/2018

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
Kevin Patterson CHPRC	MAR 01 2018 1130	Troy Bacon CHPRC	MAR 01 2018 1130	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};
Troy Bacon CHPRC	MAR 01 2018 1400	FEDEX		
	Fed Ex	C. Tarplin	3/2/18 0905	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME

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REV.0

Data Review Qualifier Definitions

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 (Organics 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 \geq 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 \geq 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 \geq EQL or is $> 5\%$ of the measured concentration and/or decision level for associated samples.	General Chemistry	
<	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide	General Chemistry	
UX	Gamma Spectroscopy--Uncertain identification	Radiological	

Laboratory Certifications

List of current GEL Certifications as of 29 March 2018

State	Certification
Alaska	17-018
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA180011
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122018-1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-18-13
Utah NELAP	SC000122018-26
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Volatile Analysis

Case Narrative

**GC/MS Volatile
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: 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).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
444994001	B3HVV6
444994002	B3HW81
444994003	B3HW89
444994004	B3HVV2
444994005	B3HVX1
444994006	B3HVV8
444994007	B3HVX5
444994008	B3HVX8
444994009	B3HW85
444994010	B3HVV7
1203984079	Method Blank (MB)
1203984080	Laboratory Control Sample (LCS)
1203984083	444994001(B3HVV6) Post Spike (PS)
1203984085	444994001(B3HVV6) 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.

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

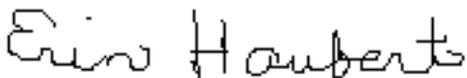
The Qualifiers in this report are defined as follows:

- E Concentration exceeds the calibration range of the instrument
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- DL Indicates that sample is diluted.
- RA Indicates that sample is re-analyzed without re-extraction.
- RE Indicates that sample is re-extracted.

Review/Validation

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

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

Signature: **Name:** Erin Haubert**Date:** 28 MAR 2018**Title:** Data Validator

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

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

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	2.00

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 1

SDG Number:	GEL444994	Date Collected:	03/01/2018 10:50	Matrix:	WATER
Lab Sample ID:	444994002	Date Received:	03/02/2018 09:05	Project:	CPRC0F16045
Client ID:	B3HW81	Client:	CPRC001	SOP Ref:	GL-OA-E-038
Batch ID:	1744514	Method:	SW846 8260C	Dilution:	1
Run Date:	03/06/2018 12:22	Inst:	VOA3.I	Purge Vol:	5 mL
Prep Date:	03/06/2018 12:22	Analyst:	JP1		
Data File:	030618V3\3Y208.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	2.00

Volatile
Certificate of Analysis
Sample Summary

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SDG Number: GEL444994	Date Collected: 03/01/2018 10:34	Matrix: WATER
Lab Sample ID: 444994003	Date Received: 03/02/2018 09:05	
Client ID: B3HW89	Client: CPRC001	Project: CPRC0F16045
Batch ID: 1744514	Method: SW846 8260C	SOP Ref: GL-OA-E-038
Run Date: 03/06/2018 12:53	Inst: VOA3.I	Dilution: 1
Prep Date: 03/06/2018 12:53	Analyst: JP1	Purge Vol: 5 mL
Data File: 030618V3\3Y209.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	2.00

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 1

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
Client ID:	B3HVY2	Method:	SW846 8260C	Project:	CPRC0F16045
Batch ID:	1744514	Inst:	VOA3.I	SOP Ref:	GL-OA-E-038
Run Date:	03/06/2018 13:25	Analyst:	JP1	Dilution:	1
Prep Date:	03/06/2018 13:25	Column:	DB-624	Purge Vol:	5 mL
Data File:	030618V3\3Y210.D				

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
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 ID: B3HVX1	Client: CPRC001	Project: CPRC0F16045
Batch ID: 1744514	Method: SW846 8260C	SOP Ref: GL-OA-E-038
Run Date: 03/06/2018 13:57	Inst: VOA3.I	Dilution: 1
Prep Date: 03/06/2018 13:57	Analyst: JP1	Purge Vol: 5 mL
Data File: 030618V3\3Y211.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	2.00

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 1

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
Client ID:	B3HVVY8	Method:	SW846 8260C	Project:	CPRC0F16045
Batch ID:	1744514	Inst:	VOA3.I	SOP Ref:	GL-OA-E-038
Run Date:	03/06/2018 14:29	Analyst:	JP1	Dilution:	1
Prep Date:	03/06/2018 14:29	Column:	DB-624	Purge Vol:	5 mL
Data File:	030618V3\3Y212.D				

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
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 ID: B3HVX5	Client: CPRC001	Project: CPRC0F16045
Batch ID: 1744514	Method: SW846 8260C	SOP Ref: GL-OA-E-038
Run Date: 03/06/2018 15:01	Inst: VOA3.I	Dilution: 1
Prep Date: 03/06/2018 15:01	Analyst: JP1	Purge Vol: 5 mL
Data File: 030618V3\3Y213.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
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 ID: B3HVX8	Client: CPRC001	Project: CPRC0F16045
Batch ID: 1744514	Method: SW846 8260C	SOP Ref: GL-OA-E-038
Run Date: 03/06/2018 15:33	Inst: VOA3.I	Dilution: 1
Prep Date: 03/06/2018 15:33	Analyst: JP1	Purge Vol: 5 mL
Data File: 030618V3\3Y214.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	2.00

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 1

SDG Number:	GEL444994	Date Collected:	03/01/2018 11:02	Matrix:	WATER
Lab Sample ID:	444994009	Date Received:	03/02/2018 09:05	Project:	CPRC0F16045
Client ID:	B3HW85	Client:	CPRC001	SOP Ref:	GL-OA-E-038
Batch ID:	1744514	Method:	SW846 8260C	Dilution:	1
Run Date:	03/14/2018 21:39	Inst:	VOA3.I	Purge Vol:	5 mL
Prep Date:	03/14/2018 21:39	Analyst:	JP1		
Data File:	031418V3\3Z324.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	2.00

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 1

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
Client ID:	B3HVW7	Method:	SW846 8260C	Project:	CPRC0F16045
Batch ID:	1744514	Inst:	VOA3.I	SOP Ref:	GL-OA-E-038
Run Date:	03/06/2018 16:36	Analyst:	JP1	Dilution:	1
Prep Date:	03/06/2018 16:36	Column:	DB-624	Purge Vol:	5 mL
Data File:	030618V3\3Y216.D				

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	2.00

Quality Control Summary

GEL LABORATORIES LLC

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QC Summary

Report Date: March 28, 2018

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CH2M Hill 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										
cis-1,2-Dichloroethylene	50.0			55.7	ug/L		111	(70%-130%)	JP1	03/06/18	09:43
**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										
cis-1,2-Dichloroethylene	50.0			45.0	ug/L		90	(70%-130%)		03/14/18	12:11
**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										
cis-1,2-Dichloroethylene			U	0.300	ug/L					03/06/18	11:18
**1,2-Dichloroethane-d4	50.0			49.5	ug/L		99	(70%-130%)			
**Bromofluorobenzene	50.0			52.7	ug/L		105	(70%-130%)			
**Toluene-d8	50.0			48.4	ug/L		97	(70%-130%)			

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QC Summary

Workorder: 444994

Page 2 of 3

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1744514										
QC1203989663	MB										
cis-1,2-Dichloroethylene			U	0.300	ug/L				JP1	03/14/18	13:14
**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									
cis-1,2-Dichloroethylene	50.0	U	0.00	50.9	ug/L		102	(70%-130%)		03/06/18	18:43
**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									
cis-1,2-Dichloroethylene	50.0	U	0.00	56.0	ug/L	10	112	(0%-20%)		03/06/18	19:14
**1,2-Dichloroethane-d4	50.0		52.6	48.8	ug/L		98	(70%-130%)			
**Bromofluorobenzene	50.0		51.2	48.6	ug/L		97	(70%-130%)			
**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

GEL LABORATORIES LLC

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QC Summary

Workorder: 444994

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

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	B3HVV6	105	98	102
444994002	B3HW81	91	94	102
444994003	B3HW89	99	99	102
444994004	B3HVY2	95	94	101
444994005	B3HVX1	101	95	102
444994006	B3HVV8	95	91	102
444994007	B3HVX5	98	93	100
444994008	B3HVX8	103	96	102
444994010	B3HVW7	103	94	99
1203984083	B3HVV6PS	94	93	99
1203984085	B3HVV6PSD	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

DCED4 = 1,2-Dichloroethane-d4

TOL = Toluene-d8

BFB = Bromofluorobenzene

Acceptance Limits

(70%-130%)

(70%-130%)

(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).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
444994001	B3HVV6
444994002	B3HW81
444994003	B3HW89
444994004	B3HVV2
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.

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**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: **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

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CH2M Hill 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

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

QC Summary

Workorder: 444994

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Parname	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%)			

GEL LABORATORIES LLC

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

QC Summary

Workorder: 444994

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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%)			

GEL LABORATORIES LLC

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

QC Summary

Workorder: 444994

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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

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Parname	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 \geq 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).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
444994001	B3HVV6
444994002	B3HW81
444994003	B3HW89
444994004	B3HVV2
444994005	B3HVX1
444994007	B3HVX5
444994008	B3HVX8
444994009	B3HW85
444994010	B3HVW7
1203982773	Method Blank (MB)
1203982774	444994001(B3HVV6) Sample Duplicate (DUP)
1203982775	444994001(B3HVV6) 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).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
444994001	B3HVV6
444994002	B3HW81
444994003	B3HW89
444994004	B3HVV2
444994005	B3HVX1

444994007	B3HVX5
444994008	B3HVX8
444994009	B3HW85
444994010	B3HVV7
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 (B3HVV7) 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).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
444994001	B3HVV6
444994002	B3HW81
444994003	B3HW89
444994004	B3HVV2
444994005	B3HVX1
444994007	B3HVX5
444994008	B3HVX8
444994009	B3HW85
444994010	B3HVV7
1203982401	Method Blank (MB)
1203982402	444994001(B3HVV6) Sample Duplicate (DUP)
1203982403	444994001(B3HVV6) 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 (B3HVV6MS), 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).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
444994001	B3HVV6
444994002	B3HW81
444994003	B3HW89
444994004	B3HVV2
444994005	B3HVX1
444994007	B3HVX5
444994008	B3HVX8
444994009	B3HW85
444994010	B3HVV7
1203982444	Method Blank (MB)
1203982445	444994001(B3HVV6) Sample Duplicate (DUP)
1203982446	444994001(B3HVV6) 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 (B3HVV6MS), 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: 

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: B3HVVY6		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	Method: TC99_EIE_LSC	Prep Basis: "As Received"
Batch ID: 1743792	Analyst: CXS7	SOP Ref: GL-RAD-A-059
Run Date: 03/20/2018 16:08	Aliquot: 100 mL	Instrument: LSCMOCHA
Data File: E1743792R3.xls	Prep Method: DOE EML HASL-300, Tc-02-	Count Time: 20 min
Prep Batch: 1743792		
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	Method: TRITIUM_DIST_LSC	Prep Basis: "As Received"
Batch ID: 1743804	Analyst: MXH8	SOP Ref: GL-RAD-A-002
Run Date: 03/08/2018 06:36	Aliquot: 50 mL	Instrument: LSCBLUE
Data File: T1743804R2.xls	Prep Method: EPA 906.0 Modified	Count Time: 50 min
Prep Batch: 1743804		
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
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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
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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
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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	Method: TC99_EIE_LSC	Prep Basis: "As Received"
Batch ID: 1743792	Analyst: CXS7	SOP Ref: GL-RAD-A-059
Run Date: 03/21/2018 10:04	Aliquot: 100 mL	Instrument: LSCMOCHA
Data File: E1743792R3.xls	Prep Method: DOE EML HASL-300, Tc-02-	Count Time: 20 min
Prep Batch: 1743792		
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	Method: TRITIUM_DIST_LSC	Prep Basis: "As Received"
Batch ID: 1743804	Analyst: MXH8	SOP Ref: GL-RAD-A-002
Run Date: 03/08/2018 07:28	Aliquot: 50 mL	Instrument: LSCBLUE
Data File: T1743804R2.xls	Prep Method: EPA 906.0 Modified	Count Time: 50 min
Prep Batch: 1743804		
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
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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	Method: C14_LSC	Prep Basis: "As Received"
Batch ID: 1743814	Analyst: BXM4	SOP Ref: GL-RAD-A-003
Run Date: 03/08/2018 02:58	Aliquot: 100.36 mL	Instrument: LSCGREEN
Data File: C1743814.xls	Prep Method: EPA EERF C-01 Modified	Count Time: 15 min
Prep Batch: 1743814		
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
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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: 444994003	Date Collected: 03/01/2018 10:34	Matrix: WATER
	Date Received: 03/02/2018 09:05	
Client ID: B3HW89	Method: DOE EML HASL-300,I-01 Mo	Prep Basis: "As Received"
Batch ID: 1743967	Analyst: BSW1	SOP Ref: GL-RAD-A-006
Run Date: 03/08/2018 08:53	Aliquot: 1.2 L	Instrument: XRAY2
Data File: I444994003.CNF;1	Prep Method: DOE EML HASL-300,I-01 M	Count Time: 120 min
Prep Batch: 1743967		
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
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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: 444994003	Date Collected: 03/01/2018 10:34	Matrix: WATER
	Date Received: 03/02/2018 09:05	
Client ID: B3HW89	Method: TC99_EIE_LSC	Prep Basis: "As Received"
Batch ID: 1743792	Analyst: CXS7	SOP Ref: GL-RAD-A-059
Run Date: 03/21/2018 10:25	Aliquot: 100 mL	Instrument: LSCMOCHA
Data File: E1743792R3.xls	Prep Method: DOE EML HASL-300, Tc-02-	Count Time: 20 min
Prep Batch: 1743792		
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.

Rad
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	Method: TRITIUM_DIST_LSC	Prep Basis: "As Received"
Batch ID: 1743804	Analyst: MXH8	SOP Ref: GL-RAD-A-002
Run Date: 03/08/2018 08:20	Aliquot: 50 mL	Instrument: LSCBLUE
Data File: T1743804R2.xls	Prep Method: EPA 906.0 Modified	Count Time: 50 min
Prep Batch: 1743804		
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.

**Rad
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	Method: C14_LSC	Prep Basis: "As Received"
Batch ID: 1743814	Analyst: BXM4	SOP Ref: GL-RAD-A-003
Run Date: 03/08/2018 03:14	Aliquot: 100.53 mL	Instrument: LSCGREEN
Data File: C1743814.xls	Prep Method: EPA EERF C-01 Modified	Count Time: 15 min
Prep Batch: 1743814		
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
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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: B3HVVY2	Method: DOE EML HASL-300,I-01 Mo	Prep Basis: "As Received"
Batch ID: 1743967	Analyst: BSW1	SOP Ref: GL-RAD-A-006
Run Date: 03/08/2018 08:53	Aliquot: 1.2 L	Instrument: XRAY4
Data File: I444994004.CNF;1	Prep Method: DOE EML HASL-300,I-01 M	Count Time: 120 min
Prep Batch: 1743967		
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
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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	Method: TC99_EIE_LSC	Prep Basis: "As Received"
Batch ID: 1743792	Analyst: CXS7	SOP Ref: GL-RAD-A-059
Run Date: 03/20/2018 17:13	Aliquot: 100 mL	Instrument: LSCMOCHA
Data File: E1743792R3.xls	Prep Method: DOE EML HASL-300, Tc-02-	Count Time: 20 min
Prep Batch: 1743792		
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:

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	Method: TRITIUM_DIST_LSC	Prep Basis: "As Received"
Batch ID: 1743804	Analyst: MXH8	SOP Ref: GL-RAD-A-002
Run Date: 03/08/2018 09:12	Aliquot: 50 mL	Instrument: LSCBLUE
Data File: T1743804R2.xls	Prep Method: EPA 906.0 Modified	Count Time: 50 min
Prep Batch: 1743804		
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
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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	Method: C14_LSC	Prep Basis: "As Received"
Batch ID: 1743814	Analyst: BXM4	SOP Ref: GL-RAD-A-003
Run Date: 03/08/2018 03:30	Aliquot: 100.21 mL	Instrument: LSCGREEN
Data File: C1743814.xls	Prep Method: EPA EERF C-01 Modified	Count Time: 15 min
Prep Batch: 1743814		
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.

**Rad
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	Method: DOE EML HASL-300,I-01 Mo	Prep Basis: "As Received"
Batch ID: 1743967	Analyst: BSW1	SOP Ref: GL-RAD-A-006
Run Date: 03/08/2018 08:54	Aliquot: 1.2 L	Instrument: XRAY5
Data File: I444994005.CNF;2	Prep Method: DOE EML HASL-300,I-01 M	Count Time: 180 min
Prep Batch: 1743967		
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
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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: 444994005	Date Collected: 03/01/2018 09:01	Matrix: WATER
	Date Received: 03/02/2018 09:05	
Client ID: B3HVX1	Method: TC99_EIE_LSC	Prep Basis: "As Received"
Batch ID: 1743792	Analyst: CXS7	SOP Ref: GL-RAD-A-059
Run Date: 03/21/2018 10:46	Aliquot: 100 mL	Instrument: LSCMOCHA
Data File: E1743792R3.xls	Prep Method: DOE EML HASL-300, Tc-02-	Count Time: 20 min
Prep Batch: 1743792		
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.

Rad
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	Method: TRITIUM_DIST_LSC	Prep Basis: "As Received"
Batch ID: 1743804	Analyst: MXH8	SOP Ref: GL-RAD-A-002
Run Date: 03/08/2018 10:04	Aliquot: 50 mL	Instrument: LSCBLUE
Data File: T1743804R2.xls	Prep Method: EPA 906.0 Modified	Count Time: 50 min
Prep Batch: 1743804		
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
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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: 444994005	Date Collected: 03/01/2018 09:01	Matrix: WATER
	Date Received: 03/02/2018 09:05	
Client ID: B3HVX1	Method: C14_LSC	Prep Basis: "As Received"
Batch ID: 1743814	Analyst: BXM4	SOP Ref: GL-RAD-A-003
Run Date: 03/08/2018 03:47	Aliquot: 100.61 mL	Instrument: LSCGREEN
Data File: C1743814.xls	Prep Method: EPA EERF C-01 Modified	Count Time: 15 min
Prep Batch: 1743814		
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
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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	Method: DOE EML HASL-300,I-01 Mo	Prep Basis: "As Received"
Batch ID: 1743967	Analyst: BSW1	SOP Ref: GL-RAD-A-006
Run Date: 03/08/2018 08:54	Aliquot: 1.2 L	Instrument: XRAY6
Data File: I444994007.CNF;1	Prep Method: DOE EML HASL-300,I-01 M	Count Time: 120 min
Prep Batch: 1743967		
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	Method: TC99_EIE_LSC	Prep Basis: "As Received"
Batch ID: 1743792	Analyst: CXS7	SOP Ref: GL-RAD-A-059
Run Date: 03/21/2018 11:08	Aliquot: 100 mL	Instrument: LSCMOCHA
Data File: E1743792R3.xls	Prep Method: DOE EML HASL-300, Tc-02-	Count Time: 20 min
Prep Batch: 1743792		
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	Method: TRITIUM_DIST_LSC	Prep Basis: "As Received"
Batch ID: 1743804	Analyst: MXH8	SOP Ref: GL-RAD-A-002
Run Date: 03/08/2018 10:56	Aliquot: 50 mL	Instrument: LSCBLUE
Data File: T1743804R2.xls	Prep Method: EPA 906.0 Modified	Count Time: 50 min
Prep Batch: 1743804		
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).
 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	Method: C14_LSC	Prep Basis: "As Received"
Batch ID: 1743814	Analyst: BXM4	SOP Ref: GL-RAD-A-003
Run Date: 03/08/2018 04:03	Aliquot: 100.65 mL	Instrument: LSCGREEN
Data File: C1743814.xls	Prep Method: EPA EERF C-01 Modified	Count Time: 15 min
Prep Batch: 1743814		
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
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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: 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
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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	Method: TC99_EIE_LSC	Prep Basis: "As Received"
Batch ID: 1743792	Analyst: CXS7	SOP Ref: GL-RAD-A-059
Run Date: 03/21/2018 11:29	Aliquot: 100 mL	Instrument: LSCMOCHA
Data File: E1743792R3.xls	Prep Method: DOE EML HASL-300, Tc-02-	Count Time: 20 min
Prep Batch: 1743792		
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	Method: TRITIUM_DIST_LSC	Prep Basis: "As Received"
Batch ID: 1743804	Analyst: MXH8	SOP Ref: GL-RAD-A-002
Run Date: 03/08/2018 11:48	Aliquot: 50 mL	Instrument: LSCBLUE
Data File: T1743804R2.xls	Prep Method: EPA 906.0 Modified	Count Time: 50 min
Prep Batch: 1743804		
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	Method: C14_LSC	Prep Basis: "As Received"
Batch ID: 1743814	Analyst: BXM4	SOP Ref: GL-RAD-A-003
Run Date: 03/08/2018 04:19	Aliquot: 100.94 mL	Instrument: LSCGREEN
Data File: C1743814.xls	Prep Method: EPA EERF C-01 Modified	Count Time: 15 min
Prep Batch: 1743814		
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
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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	Method: DOE EML HASL-300,I-01 Mo	Prep Basis: "As Received"
Batch ID: 1743967	Analyst: BSW1	SOP Ref: GL-RAD-A-006
Run Date: 03/08/2018 14:36	Aliquot: 1.2 L	Instrument: XRAY1
Data File: I444994009.CNF;1	Prep Method: DOE EML HASL-300,I-01 M	Count Time: 180 min
Prep Batch: 1743967		
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
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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	Method: TC99_EIE_LSC	Prep Basis: "As Received"
Batch ID: 1743792	Analyst: CXS7	SOP Ref: GL-RAD-A-059
Run Date: 03/21/2018 11:50	Aliquot: 100 mL	Instrument: LSCMOCHA
Data File: E1743792R3.xls	Prep Method: DOE EML HASL-300, Tc-02-	Count Time: 20 min
Prep Batch: 1743792		
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).
 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	Method: TRITIUM_DIST_LSC	Prep Basis: "As Received"
Batch ID: 1743804	Analyst: MXH8	SOP Ref: GL-RAD-A-002
Run Date: 03/08/2018 12:40	Aliquot: 50 mL	Instrument: LSCBLUE
Data File: T1743804R2.xls	Prep Method: EPA 906.0 Modified	Count Time: 50 min
Prep Batch: 1743804		
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).
 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	Method: C14_LSC	Prep Basis: "As Received"
Batch ID: 1743814	Analyst: BXM4	SOP Ref: GL-RAD-A-003
Run Date: 03/08/2018 04:36	Aliquot: 100.04 mL	Instrument: LSCGREEN
Data File: C1743814.xls	Prep Method: EPA EERF C-01 Modified	Count Time: 15 min
Prep Batch: 1743814		
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
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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: B3HVVW7		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
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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: B3HVVW7	Method: TC99_EIE_LSC	Prep Basis: "As Received"
Batch ID: 1743792	Analyst: CXS7	SOP Ref: GL-RAD-A-059
Run Date: 03/21/2018 12:12	Aliquot: 100 mL	Instrument: LSCMOCHA
Data File: E1743792R3.xls	Prep Method: DOE EML HASL-300, Tc-02-	Count Time: 20 min
Prep Batch: 1743792		
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:

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	Method: TRITIUM_DIST_LSC	Prep Basis: "As Received"
Batch ID: 1743804	Analyst: MXH8	SOP Ref: GL-RAD-A-002
Run Date: 03/08/2018 13:32	Aliquot: 50 mL	Instrument: LSCBLUE
Data File: T1743804R2.xls	Prep Method: EPA 906.0 Modified	Count Time: 50 min
Prep Batch: 1743804		
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
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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: B3HVVW7		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
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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		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		U	64.0		4910	pCi/L	REC: 95 (75%-125%)		03/08/1816:08

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Parname	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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Parname	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 (Organics only)				

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

** Indicates analyte is a surrogate compound.

^ 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.

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.