



a member of **The GEL Group** INC



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gel.com

October 07, 2020

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

Re: CHPRC SAF F20-052
Work Order: 521241
SDG: GEL521241

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on September 14, 2020. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

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,

A handwritten signature in black ink that reads "Heather Shaffer".

Heather Shaffer
Project Manager

Purchase Order: 302282 - 7H
Chain of Custody: F20-052-001, F20-052-002, F20-052-003, F20-052-004, F20-052-005, F20-052-006,
F20-052-007 and F20-052-008
Enclosures

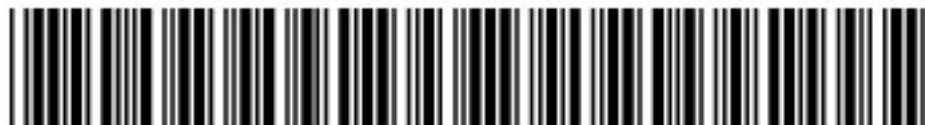


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Sample Issue Resolution

SAMPLE ISSUE RESOLUTION (SIR) REPORT		SIR Number: SIR20-0320
		Rev. Number: 0
		Date Initiated: 09/15/2020
<u>SAMPLE EVENT INFORMATION</u>		
SAF NUM(S):	F20-052	
LABORATORY:	GEL	
<u>SAMPLING INFORMATION</u>		
NUMBER OF SAMPLES:	8	
SAMPLE NUMBERS:	B3XJK2, B3XJK3, B3XJK4, B3XJK5, B3XJK6, B3XJK7, B3XJK8, B3XJK9	
SAMPLE MATRIX:	WATER	
SDG NUM(S):	GEL521241	
<u>ISSUE BACKGROUND</u>		
CLASS:	Commercial Shipping Issue	
TYPE:	Other Shipping Issue (Specify)	
DESCRIPTION:	Due to a commercial shipping delay, samples were not received at the lab until Monday 9/14. Coolers were all at a temperature greater than 13C. T. The above samples had 9056_ANIONS, 1601._TDS, 2540D_TSS, 9040_pH, and 9060_TOC requested. Anions were close to, and possibly out of, 2x hold at receipt.	
<u>RESOLUTION</u>		
PROPOSED RESOLUTION:	Per instruction from the project, the lab will run samples out of temperature spec.	
FINAL RESOLUTION:	Please proceed with analysis and flag results appropriately.	
SUBMITTED BY:		
SHAFFER, H	_____	09/15/2020 _____
ACCEPTED BY:		
CUTSFORTH, EC	_____	09/15/2020 _____

Case Narrative

**General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF F20-052
SDG: GEL521241**

October 07, 2020

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 September 14, 2020, 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. Please see the enclosed SIR for details on the commercial shipping delay. The client gave the lab instruction to proceed with all analysis..

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>
521241001	B3XJK3
521241002	B3XJK5
521241003	B3XJK7
521241004	B3XJK9
521241005	B3XJK2
521241006	B3XJK4
521241007	B3XJK6
521241008	B3XJK8

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: General Chemistry, Metals and Radiochemistry.

We certify that this package is in compliance with the Analytical Laboratory Services for CH2M Hill Plateau Remediation Company Statement of Work, 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 data package deliverable has been authorized by the Laboratory Analytical Manager (or designee) and the laboratory's client services representative as verified by their signatures on this report.



Heather Shaffer
Project Manager

Technical Case Narrative
CH2MHill Plateau Remediation Company
SDG #: GEL521241
Work Order #: 521241

Metals

Determination of Metals by ICP

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

Quality Control (QC) Information

Method Blank (MB) Statement

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

Sample	Analyte	Value
1204642891 (MB)	Sodium	See applicable report

Matrix Spike (MS/MSD) Recovery Statement

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

Sample	Analyte	Value
1204642894 (Non SDG 521232002MSD)	Silicon	74.2* (75%-125%)

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.

Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer

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

General Chemistry

Carbon, Total Organic

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.

Ion Chromatography

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

Technical Information

Holding Times

Samples (See Below) were received by the laboratory outside of the method specified holding time. The data is qualified.

Sample	Analyte	Value
1204642824 (Non SDG 521228001DUP)	Nitrate, Nitrite and Ortho-phosphate	Received 14-SEP-20, out of holding 12-SEP-20
1204642825 (Non SDG 521228001PS)	Nitrate, Nitrite and Ortho-phosphate	Received 14-SEP-20, out of holding 12-SEP-20
521241001 (B3XJK3)	Nitrate, Nitrite and Ortho-phosphate	Received 14-SEP-20, out of holding 12-SEP-20
521241002 (B3XJK5)	Nitrate, Nitrite and Ortho-phosphate	Received 14-SEP-20, out of holding 12-SEP-20
521241003 (B3XJK7)	Nitrate, Nitrite and Ortho-phosphate	Received 14-SEP-20, out of holding 12-SEP-20
521241004 (B3XJK9)	Nitrate, Nitrite and Ortho-phosphate	Received 14-SEP-20, out of holding 12-SEP-20

Sample Dilutions

The following samples 1204642824 (Non SDG 521228001DUP), 1204642825 (Non SDG 521228001PS), 521241001 (B3XJK3), 521241003 (B3XJK7) and 521241004 (B3XJK9) were diluted because target analyte concentrations exceeded the calibration range.

Analyte	521241		
	001	003	004
Chloride	10X	5X	5X
Nitrate	10X	5X	5X
Sulfate	10X	5X	5X

Solids, Total Dissolved

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.

Solids, Total Suspended

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**

Sample filtration took > 10 minutes; therefore as prescribed in the method, a reduced aliquot was used. 1204645273 (Non SDG 521164003DUP). A reduced aliquot was used due to limited volume. The client did not provide an entire 1 liter aliquot. 521241005 (B3XJK2), 521241006 (B3XJK4), 521241007 (B3XJK6) and 521241008 (B3XJK8).

pH

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

Technical Information**Holding Times**

Samples (See Below) were received by the laboratory outside of the method specified holding time. The data is qualified.

Sample	Analyte	Value
1204636887 (B3XJK8DUP)		Received 12-SEP-20, out of holding 10-SEP-20
521241005 (B3XJK2)		Received 14-SEP-20, out of holding 10-SEP-20
521241006 (B3XJK4)		Received 14-SEP-20, out of holding 10-SEP-20
521241007 (B3XJK6)		Received 14-SEP-20, out of holding 10-SEP-20
521241008 (B3XJK8)		Received 14-SEP-20, out of holding 10-SEP-20

Radiochemistry**SMR_ALPHABETA_GPC**

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-prep/Re-analysis

Samples were reprepared due to high relative percent difference/relative error ratio. The re-analysis is being reported.

Gross Alpha/Beta Preparation Information

High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating.

Recounts

Sample 1204658975 (Non SDG 522639003MSD) was recounted due to high recovery. The recount is reported.

Miscellaneous Information

Additional Comments

The matrix spike and matrix spike duplicate, 1204658974 (Non SDG 522639003MS) and 1204658975 (Non SDG 522639003MSD), aliquots were 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

Page 1 of 1
CH2MHill Plateau Remediation Company
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST **521241**
F20-052-002 **PAGE 1 OF 1**

COLLECTOR *ATG-10-20-20*
Gregory Hackett *Jan ATG*
COMPANY CONTACT **KILLAND, KE**
TELEPHONE NO. **373-0221**
PROJECT COORDINATOR **KILLAND, KE**

SAMPLING LOCATION **Trench 31 leachate, SEPTEMBER 2020**
PROJECT DESIGNATION **Mixed Waste Disposal Facility F039 Leachate Sampling (Trenches 31 & 34)**
SAF NO. **F20-052**

ICE CHEST NO. *TLB 07-10-20*
6WS-532 *136*
FIELD LOGBOOK NO. *N/A*
ACTUAL SAMPLE DEPTH *N/A*
PURCHASE ORDER/CHARGE CODE **302282**

SHIPPED TO **GEL Laboratories, LLC**
OFFSITE PROPERTY NO. *N/A*
BILL OF LADING/AIR BILL NO. *7714 9540 4503*

REQUIRED TAT
30 Days

ORIGINAL

METHOD OF SHIPMENT
FEDERAL EXPRESS

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	HOLDING TIME	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS
A=Air D=Drum L=Liquids DS=Drum S=Soil T=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	Cool <=6C	28 Days/48 Hours	G/P	1	250mL	N/A	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B3XJK3	N/A	WATER	9-10-20	0913				✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME	SPECIAL INSTRUCTIONS
<i>ATG-10-20-20</i> <i>Gregory Hackett</i>	<i>9-10-2020 10:50</i>	<i>SAF Jones</i>	<i>Troy Bacon</i> ICPRC	<i>SEP 10 2020 1050</i>	TRVL-20-130; (1) 9056_ANIONS_IC: COMMON {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate}; 9056_ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};
<i>Troy Bacon</i> ICPRC	<i>SEP 10 2020 1400</i>	<i>Troy L. Bacon</i>	FEDEX		
<i>FedEx</i>		<i>A. Amersbach</i>	<i>SEP 14 2020 9:10</i>		

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

GEL521241

October 10, 2020

Rev. 0

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 521241			F20-052-004	PAGE 1 OF 1
COLLECTOR Jim Lochridge CHPRC	COMPANY CONTACT KILLAND, KE	TELEPHONE NO. 373-0221	PROJECT COORDINATOR KILLAND, KE		REQUIRED TAT 30 Days	
SAMPLING LOCATION Trench 31 leachate, SEPTEMBER 2020 FTB	PROJECT DESIGNATION Mixed Waste Disposal Facility F039 Leachate Sampling (Trenches 31 & 34)		SAF NO. F20-052	ORIGINAL		
ICE CHEST NO. GWS-136	FIELD LOGBOOK NO. N/A	ACTUAL SAMPLE DEPTH N/A	PURCHASE ORDER/CHARGE CODE 302282	METHOD OF SHIPMENT FEDERAL EXPRESS		
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. N/A	BILL OF LADING/AIR BILL NO. N/A		7714 9340 4503		
MATRIX* A=Air D8=Drum L=Liquids D9=Drum S=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 Cool <=6C	HOLDING TIME 28 Days/48 Hours	09-10-20		
		TYPE OF CONTAINER G/P	NO. OF CONTAINER(S) 1			
		VOLUME 250mL	SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS			
SPECIAL HANDLING AND/OR STORAGE N/A						
SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B3XJK5	N/A	WATER	09-10-2020	0715	✓	

GEL521241

October 10, 2020

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	TRVL-20-130; (1) 9056_ANIONS_IC: COMMON {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate}; 9056_ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};	
Jim Lochridge CHPRC	SEP 10 2020 0820	Ruben Rivera CHPRC	SEP 10 2020 0820		
Ruben Rivera CHPRC	9-10-20 1142	Troy Bacon CHPRC	SEP 10 2020 1142		
Troy Bacon CHPRC	SEP 10 2020 1400	FEDEX			
FedEx		A. Amers	SEP 14 2020 9:10		

(14 of 82)

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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Page 1 of 1
CH2M Hill Plateau Remediation Company
COLLECTOR *9-10-2020*
COMPANY CONTACT KILLAND, KE
TELEPHONE NO. 373-0221
PROJECT COORDINATOR KILLAND, KE
F20-052-006 **PAGE 1 OF 1**
REQUIRED TAT 30 Days
SAMPLING LOCATION Trench 34 leachate, SEPTEMBER 2020
PROJECT DESIGNATION Mixed Waste Disposal Facility F039 Leachate Sampling (Trenches 31 & 34)
SAF NO. F20-052
ICE CHEST NO. *12B 09-10-20*
FIELD LOGBOOK NO. *N/A*
ACTUAL SAMPLE DEPTH *N/A*
PURCHASE ORDER/CHARGE CODE 302282
METHOD OF SHIPMENT FEDERAL EXPRESS
SHIPPED TO GEL Laboratories, LLC
OFFSITE PROPERTY NO. *N/A*
BILL OF LADING/AIR BILL NO. *7714 9540 4503*

MATRIX* A=Air D=Drum L=Liquids DS=Drum S=Solids T=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 Cool <=6C
		HOLDING TIME 28 Days/48 Hours
		TYPE OF CONTAINER G/P
		NO. OF CONTAINER(S) 1
		VOLUME 250mL
	SPECIAL HANDLING AND/OR STORAGE N/A	SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B3XJK7	N/A	WATER	9-10-20	0947	✓

SEP 10 2020 1050

CHAIN OF POSSESSION
 RELINQUISHED BY/REMOVED FROM: *Jay Johnson 9-10-2020 1050*
 RECEIVED BY/STORED IN: *Troy Bacon 9-10-2020 0946*
 SIGN/ PRINT NAMES: *Jay Johnson* *Troy Bacon*
 SPECIAL INSTRUCTIONS: TRVL-20-130; (1) 9056_ANIONS_IC: COMMON {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate}; 9056_ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};
 RECEIVED BY/STORED IN: *A. Almers 9-10-2020 9:10*
 RECEIVED BY/STORED IN: *FedEx*
 RECEIVED BY/STORED IN: *FedEx*

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME
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GEL521241

October 10, 2020

Rev. 0

CH2M Hill Plateau Remediation Company 75 LBS. CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 521241 F20-052-008 PAGE 1 OF 1

COLLECTOR *Jay H Jones* COMPANY CONTACT TELEPHONE NO. PROJECT COORDINATOR

Raymond Horvath KILLAND, KE 373-0221 KILLAND, KE

SAMPLING LOCATION PROJECT DESIGNATION SAF NO.

Trench 34 leachate, SEPTEMBER 2020 DUP Mixed Waste Disposal Facility F039 Leachate Sampling (Trenches 31 & 34) F20-052

ICE CHEST NO. *TLR 07-10-20* FIELD LOGBOOK NO. ACTUAL SAMPLE DEPTH PURCHASE ORDER/CHARGE CODE METHOD OF SHIPMENT

6WS-532 *136* *N/A* *N/A* 302282 FEDERAL EXPRESS

SHIPPED TO OFFSITE PROPERTY NO. BILL OF LADING/AIR BILL NO.

GEL Laboratories, LLC *N/A* *7714 9540 4503*

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	HOLDING TIME	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS
A=Air D=Drum L=Liquid S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	Cool <=6C	28 Days/48 Hours	G/P	1	250mL	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
	SPECIAL HANDLING AND/OR STORAGE N/A						

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B3XJK9	N/A	WATER	9-10-20	0947	✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM <i>Jay H Jones</i> 9-10-2020 DATE/TIME	RECEIVED BY/STORED IN <i>Troy Bacon</i> SEP 10 2020 10:50 DATE/TIME	TRVL-20-130; (1) 9056_ANIONS_IC: COMMON {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate}; 9056_ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};
<i>Troy Bacon</i> SEP 10 2020 1400 DATE/TIME	<i>Troy L Bacon</i> SEP 10 2020 1050 DATE/TIME	
<i>FedEx</i>	<i>FEDEX</i>	
<i>A. Amersbach</i> 9/14/20 9:10 DATE/TIME		

FINAL SAMPLE DISPOSITION DISPOSAL METHOD DISPOSED BY DATE/TIME

GEL521241

October 10, 2020

Rev. 0

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 521241			F20-052-001	PAGE 1 OF 1
COLLECTOR <i>9-10-2020</i> <i>[Signature]</i>	COMPANY CONTACT KILLAND, KE	TELEPHONE NO. 373-0221	PROJECT COORDINATOR KILLAND, KE		REQUIRED TAT 30 Days	
SAMPLING LOCATION Trench 31 leachate, SEPTEMBER 2020	PROJECT DESIGNATION Mixed Waste Disposal Facility F039 Leachate Sampling (Trenches 31 & 34)		SAF NO. F20-052		ORIGINAL	
ICE CHEST NO. <i>1LB 09-10-20</i> <i>GWS 532</i> <i>136</i>	FIELD LOGBOOK NO. <i>N/A</i>	ACTUAL SAMPLE DEPTH <i>N/A</i>	PURCHASE ORDER/CHARGE CODE 302282		METHOD OF SHIPMENT FEDERAL EXPRESS	
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. <i>N/A</i>		BILL OF LADING/AIR BILL NO. <i>7714 9540 4503</i>			

MATRIX* A=Air DS=Drum L=Liquids DS=Drum S=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	HNO3 to pH <2	HCl or H2SO4 to pH <2/Cool <=6C	Cool <=6C	HNO3 to pH <2
		HOLDING TIME	28 Days	28 Days	7 Days	6 Months
		TYPE OF CONTAINER	G	aG	G/P	G/P
		NO. OF CONTAINER(S)	1	1	2	1
		VOLUME	500mL	250mL	1L	500mL
		SPECIAL HANDLING AND/OR STORAGE	N/A			
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	9060_TOC: COMMON;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SMR_ALPHABET A_GPC {Gross alpha, Gross beta};		
SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B3XJK2	N/A	WATER	9-10-20	0913	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM <i>9-10-2020 10:50</i> <i>[Signature]</i> Troy Bacon ICHPRC	SIGN/ PRINT NAMES RECEIVED BY/STORED IN <i>Troy L Bacon</i> ICHPRC FEDEX	SPECIAL INSTRUCTIONS TRVL-20-130; ** Lab advised to analyze pH within 7-days of receipt. (1) 7470_MERCURY_CV: COMMON (AQUEOUS); 6020_METALS_ICPMS: COMMON {Aluminum, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Antimony, Arsenic, Manganese, Nickel, Silver, Thallium, Uranium, Zinc}; 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium, Vanadium}; 6010_METALS_ICP: COMMON (Add-on) {Silicon}; (2) 160.1_TDS: COMMON; 2540D_TSS: COMMON {Total suspended solids}; 9040_pH (AQUEOUS): COMMON;
	DATE/TIME <i>SEP 10 2020 10:50</i>	
	RECEIVED BY/STORED IN <i>A. Almers/A. Almers</i> DATE/TIME <i>SEP 14 2020 9:10</i>	
	RECEIVED BY/STORED IN DATE/TIME	

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

GEL521241

October 10, 2020

Rev. 0

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 521241				F20-052-003	PAGE 1 OF 1	
COLLECTOR Jim Lochridge CHPRC		COMPANY CONTACT KILLAND, KE		TELEPHONE NO. 373-0221	PROJECT COORDINATOR KILLAND, KE		REQUIRED TAT 30 Days	
SAMPLING LOCATION French 31 leachate, SEPTEMBER 2020 FTB		PROJECT DESIGNATION Mixed Waste Disposal Facility F039 Leachate Sampling (Trenches 31 & 34)			SAF NO. F20-052	ORIGINAL		
ICE CHEST NO. GWS-136		FIELD LOGBOOK NO. N/A		ACTUAL SAMPLE DEPTH N/A	PURCHASE ORDER/CHARGE CODE 302282	METHOD OF SHIPMENT FEDERAL EXPRESS		
SHIPPED TO CEL Laboratories, LLC		OFFSITE PROPERTY NO. N/A			BILL OF LADING/AIR BILL NO. N/A 7714 95404503 09-10-20			
MATRIX* A=Air D=Drum 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		HNO3 to pH <2	HCl or H2SO4 to pH <2/Cool <=6C	Cool <=6C	HNO3 to pH <2
			HOLDING TIME		28 Days	28 Days	7 Days	6 Months
			TYPE OF CONTAINER		G	aG	G/P	G/P
			NO. OF CONTAINER(S)		1	1	2	1
			VOLUME		500mL	250mL	1L	500mL
	SPECIAL HANDLING AND/OR STORAGE N/A		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS	9060_TOC; COMMON;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SMR_ALPHABET A_GPC (Gross alpha, Gross beta);
SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B3XJK4	N/A	WATER	09-10-2020	0715	✓	✓	✓	

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	TRVL-20-130; ** Lab advised to analyze pH within 7-days of receipt. (1) 7470_MERCURY_CV: COMMON (AQUEOUS); 6020_METALS_ICPMS: COMMON {Aluminum, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Antimony, Arsenic, Manganese, Nickel, Silver, Thallium, Uranium, Zinc}; 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium, Vanadium}; 6010_METALS_ICP: COMMON (Add-on) {Silicon}; (2) 160.1_TDS: COMMON; 2540D_TSS: COMMON {Total suspended solids}; 9040_pH (AQUEOUS): COMMON;	
Jim Lochridge CHPRC	SEP 10 2020 0820	Ruben Rivera CHPRC	SEP 10 2020 0820		
Ruben Rivera CHPRC	SEP 10 2020 1132	Troy Bacon CHPRC	SEP 10 2020 1442		
Troy Bacon CHPRC	SEP 10 2020 1400	FedEx			
		FedEx	SEP 14 2020 9:10		

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 521241

F20-052-005 PAGE 1 OF 1

COLLECTOR *Jan 7/Jan* **COMPANY CONTACT** KILLAND, KE **TELEPHONE NO.** 373-0221 **PROJECT COORDINATOR** KILLAND, KE

SAMPLING LOCATION Trench 34 leachate, SEPTEMBER 2020 **PROJECT DESIGNATION** Mixed Waste Disposal Facility F039 Leachate Sampling (Trenches 31 & 34) **SAF NO.** F20-052

ICE CHEST NO. *TLB 09-10-20* **FIELD LOGBOOK NO.** *N/A* **ACTUAL SAMPLE DEPTH** *N/A* **PURCHASE ORDER/CHARGE CODE** 302282 **METHOD OF SHIPMENT** FEDERAL EXPRESS

SHIPPED TO GEL Laboratories, LLC **OFFSITE PROPERTY NO.** *N/A* **BILL OF LADING/AIR BILL NO.** *7714 9540 4503*

MATRIX*	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					
		HNO3 to pH <2					
		HCl or H2SO4 to pH <2/Cool <=6C					
		Cool <=6C					
		HNO3 to pH <2					
		HOLDING TIME: 28 Days					
TYPE OF CONTAINER		G	aG	G/P	G/P		
NO. OF CONTAINER(S)		1	1	2	1		
VOLUME		500mL	250mL	1L	500mL		
SPECIAL HANDLING AND/OR STORAGE N/A		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS	9060_TOC; COMMON;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SMR_ALPHABET A_GPC {Gross alpha, Gross beta};

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B3XJK6	N/A	WATER	9-10-20	0947	✓	✓	✓	✓

CHAIN OF POSSESSION *JAN 14 10:50 9-10-2020*

RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME	SPECIAL INSTRUCTIONS
<i>Jan 7/Jan</i>	<i>9-10-2020 0947</i>	<i>Troy Bacon</i>	<i>Troy Bacon</i>	<i>SEP 10 2020 1050</i>	TRVL-20-130; ** Lab advised to analyze pH within 7-days of receipt. (1) 7470_MERCURY_CV: COMMON (AQUEOUS); 6020_METALS_ICPMS: COMMON {Aluminum, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Antimony, Arsenic, Manganese, Nickel, Silver, Thallium, Uranium, Zinc}; 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium, Vanadium}; 6010_METALS_ICP: COMMON (Add-on) {Silicon}; (2) 160.1_TDS: COMMON; 2540D_TSS: COMMON {Total suspended solids}; 9040_pH (AQUEOUS): COMMON;
<i>Troy Bacon</i>	<i>SEP 10 2020 1400</i>	<i>Troy Bacon</i>	<i>FEDEX</i>		
<i>FedEx</i>		<i>A. Almers</i>	<i>A. Almers</i>	<i>SEP 14 2020 9:10</i>	

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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CH2MHill Plateau Remediation Company
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST *52-9/15/20*
F20-052-007 **PAGE 1 OF 1**
COLLECTOR *9-10-2020*
COMPANY CONTACT KILLAND, KE **TELEPHONE NO.** 373-0221 **PROJECT COORDINATOR** KILLAND, KE **REQUIRED TAT** 30 Days
SAMPLING LOCATION Trench 34 leachate, SEPTEMBER 2020 DUP **PROJECT DESIGNATION** Mixed Waste Disposal Facility F039 Leachate Sampling (Trenches 31 & 34) **SAF NO.** F20-052 **ORIGINAL**
ICE CHEST NO. *09-10-20, LB* **FIELD LOGBOOK NO.** *N/A* **ACTUAL SAMPLE DEPTH** *N/A* **PURCHASE ORDER/CHARGE CODE** 302282 **METHOD OF SHIPMENT** FEDERAL EXPRESS
SHIPPED TO GEL Laboratories, LLC **OFFSITE PROPERTY NO.** *N/A* **BILL OF LADING/AIR BILL NO.** *2714 9540 4503*

MATRIX* A=Air D=Drum L=Liquids DS=Drum S=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						
		HOLDING TIME						
		TYPE OF CONTAINER						
		NO. OF CONTAINER(S)						
		VOLUME						
SPECIAL HANDLING AND/OR STORAGE N/A		SAMPLE ANALYSIS						
		HHO3 to pH <2	HCl or H2SO4 to pH <2/Cool <=6C	Cool <=6C	HHO3 to pH <2			
		28 Days	28 Days	7 Days	6 Months			
		G	aG	G/P	G/P			
		1	1	2	1			
		500mL	250mL	1L	500mL			
		SEE ITEM (1) IN SPECIAL INSTRUCTIONS	9060_TOC: COMMON;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SMR_ALPHABET A_GPC {Gross alpha, Gross beta};			
SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B3XJK8	N/A	WATER	9-10-20	0947	✓	✓	✓	✓

CHAIN OF POSSESSION
RELINQUISHED BY/REMOVED FROM *9-10-2020 10:50* DATE/TIME
9-10-2020 0947 DATE/TIME
SIGN/ PRINT NAMES RECEIVED BY/STORED IN **DATE/TIME**
Troy Bacon *SEP 10 2020 1050*
FEDEX
FedEx
A. Amers *SEP 14 2020 9:10*
SPECIAL INSTRUCTIONS
TRVL-20-130; ** Lab advised to analyze pH within 7-days of receipt.
(1) 7470_MERCURY_CV: COMMON (AQUEOUS); 6020_METALS_ICPMS: COMMON {Aluminum, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Antimony, Arsenic, Manganese, Nickel, Silver, Thallium, Uranium, Zinc}; 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium, Vanadium}; 6010_METALS_ICP: COMMON (Add-on) {Silicon};
(2) 160.1_TDS: COMMON; 2540D_TSS: COMMON {Total suspended solids}; 9040_pH (AQUEOUS): COMMON;

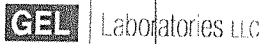
FINAL SAMPLE DISPOSITION **DISPOSAL METHOD** **DISPOSED BY** **DATE/TIME**

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GEL521241

October 10, 2020

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US SAMPLE RECEIPT & REVIEW FORM

Client: <u>CPAC</u>		SDG/AR/COC/Work Order: <u>521241</u>			
Received By: <u>AJA</u>		Date Received: <u>9/14/20</u>			
Carrier and Tracking Number		Circle Applicable: <input checked="" type="checkbox"/> FedEx Express <input type="checkbox"/> FedEx Ground <input type="checkbox"/> UPS <input type="checkbox"/> Field Services <input type="checkbox"/> Courier <input type="checkbox"/> Other <u>7714 9453 7545-14°, 7714 9524 9661-18°</u> <u>7714 9552 4232-15°, 7714 9540 4503-13°</u> <u>7714 9624 7540-16°</u>			
Suspected Hazard Information		*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. Hazard Class Shipped: _____ UN#: _____ If UN2910, Is the Radioactive Shipment Survey Compliant? Yes ___ No ___			
A) Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
B) Did the client designate the samples to be received as radioactive?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
C) Did the RSO classify the samples as radioactive?		Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u> CPM / mR/Hr Classified as: <input checked="" type="checkbox"/> Rad 1 <input type="checkbox"/> Rad 2 <input type="checkbox"/> Rad 3			
D) Did the client designate samples are hazardous?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
E) Did the RSO identify possible hazards?		If D or E is yes, select Hazards below. <input type="checkbox"/> PCB's <input type="checkbox"/> Flammable <input type="checkbox"/> Foreign Soil <input type="checkbox"/> RCRA <input type="checkbox"/> Asbestos <input type="checkbox"/> Beryllium <input type="checkbox"/> Other:			
Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry ice <input type="checkbox"/> None <input type="checkbox"/> Other: *all temperatures are recorded in Celsius TEMP: <u>see above</u>
4	Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>IR4-16</u> Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If Yes, are Encores or Soil Kits present for solids? Yes ___ No ___ <input checked="" type="checkbox"/> NA ___ (If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes ___ No ___ <input checked="" type="checkbox"/> NA ___ (If unknown, select No) Are liquid VOA vials free of headspace? Yes ___ No ___ <input checked="" type="checkbox"/> NA ___ Sample ID's and containers affected:
8	Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and containers affected:
10	Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Not relinquished Other (describe)
Comments (Use Continuation Form if needed):					

PM (or PMA) review: Initials WD Date 9/15/20 Page 1 of 1

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.		
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	
o	Analyte failed to recover within LCS limits	Radiological	Rad

Laboratory Certifications

List of current GEL Certifications as of 07 October 2020

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
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	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2019020
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122020-1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2019-165
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-20-17
Utah NELAP	SC000122020-32
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
CH2MHill Plateau Remediation Company
SDG #: GEL521241
Work Order #: 521241

Product: Determination of Metals by ICP**Analytical Method:** SW846 3005A/6010D**Analytical Procedure:** GL-MA-E-013 REV# 31**Analytical Batch:** 2040383**Product: Determination of Metals by ICP-MS****Analytical Method:** SW846 3005A/6020B**Analytical Procedure:** GL-MA-E-014 REV# 34**Analytical Batch:** 2040395**Product: Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer****Analytical Method:** 7470_HG_CVAA**Analytical Procedure:** GL-MA-E-010 REV# 38**Analytical Batch:** 2047082**Preparation Method:** SW846 3005A**Preparation Procedure:** GL-MA-E-006 REV# 14**Preparation Batches:** 2040382 and 2040394**Preparation Method:** SW846 7470A Prep**Preparation Procedure:** GL-MA-E-010 REV# 38**Preparation Batch:** 2047078

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
521241005	B3XJK2
521241006	B3XJK4
521241007	B3XJK6
521241008	B3XJK8
1204642891	Method Blank (MB) ICP
1204642892	Laboratory Control Sample (LCS)
1204642895	521232002(NonSDGL) Serial Dilution (SD)
1204642893	521232002(NonSDGS) Matrix Spike (MS)
1204642894	521232002(NonSDGSD) Matrix Spike Duplicate (MSD)
1204647646	521232002(NonSDGPS) Post Spike (PS)
1204642924	Method Blank (MB) ICP-MS
1204642925	Laboratory Control Sample (LCS)
1204642928	521232002(NonSDGL) Serial Dilution (SD)
1204642926	521232002(NonSDGS) Matrix Spike (MS)
1204642927	521232002(NonSDGSD) Matrix Spike Duplicate (MSD)
1204658052	Method Blank (MB) CVAA
1204658053	Laboratory Control Sample (LCS)
1204658056	521236006(NonSDGL) Serial Dilution (SD)

1204658054 521236006(NonSDGD) Sample Duplicate (DUP)
 1204658055 521236006(NonSDGS) Matrix Spike (MS)

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.

Quality Control (QC) Information

Method Blank (MB) Statement

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

Sample	Analyte	Value
1204642891 (MB)	Sodium	See applicable report

Matrix Spike (MS/MSD) Recovery Statement

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

Sample	Analyte	Value
1204642894 (Non SDG 521232002MSD)	Silicon	74.2* (75%-125%)

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: GEL521241 GEL Work Order: 521241

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:** Edmund Frampton**Date:** 06 OCT 2020**Title:** Team Leader

Sample Data Summary

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL521241

CONTRACT: CPRC0F20052

METHOD TYPE: SW846

SAMPLE ID: 521241005

BASIS: As Received

DATE COLLECTED 10-SEP-20

CLIENT ID: B3XJK2

LEVEL: Low

DATE RECEIVED 14-SEP-20

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	50.0	50.0	1	MS	SKJ	09/22/20 19:30	200922-5	2040395
7440-36-0	Antimony	1.00	ug/L	U	1.00	3.00	3.00	1	MS	SKJ	09/22/20 19:30	200922-5	2040395
7440-38-2	Arsenic	16.4	ug/L		2.00	5.00	5.00	1	MS	SKJ	09/24/20 12:18	200924-6	2040395
7440-41-7	Beryllium	0.200	ug/L	U	0.200	0.500	0.500	1	MS	SKJ	09/23/20 15:07	200923-7	2040395
7440-43-9	Cadmium	0.300	ug/L	U	0.300	1.00	1.00	1	MS	SKJ	09/22/20 19:30	200922-5	2040395
7440-70-2	Calcium	50100	ug/L		50.0	200	200	1	P	HSC	09/16/20 13:25	091620-4	2040383
7440-47-3	Chromium	5.38	ug/L	B	3.00	10.0	10.0	1	MS	SKJ	09/22/20 19:30	200922-5	2040395
7440-48-4	Cobalt	0.300	ug/L	U	0.300	1.00	1.00	1	MS	SKJ	09/22/20 19:30	200922-5	2040395
7440-50-8	Copper	2.20	ug/L		0.300	2.00	2.00	1	MS	SKJ	09/22/20 19:30	200922-5	2040395
7439-89-6	Iron	106	ug/L		30.0	100	100	1	P	HSC	09/16/20 13:25	091620-4	2040383
7439-92-1	Lead	0.500	ug/L	U	0.500	2.00	2.00	1	MS	SKJ	09/22/20 19:30	200922-5	2040395
7439-95-4	Magnesium	13000	ug/L		110	300	300	1	P	HSC	09/16/20 13:25	091620-4	2040383
7439-96-5	Manganese	1.35	ug/L	B	1.00	5.00	5.00	1	MS	SKJ	09/22/20 19:30	200922-5	2040395
7439-97-6	Mercury	0.0670	ug/L	U	0.0670	0.200	0.200	1	AV	MTM1	10/05/20 15:07	100520W1-8	2047082
7440-02-0	Nickel	0.600	ug/L	U	0.600	2.00	2.00	1	MS	SKJ	09/22/20 19:30	200922-5	2040395
7440-09-7	Potassium	6920	ug/L		50.0	150	150	1	P	HSC	09/17/20 10:27	091720-1	2040383
7782-49-2	Selenium	2.00	ug/L	U	2.00	5.00	5.00	1	MS	SKJ	09/22/20 19:30	200922-5	2040395
7440-21-3	Silicon	16100	ug/L		25.0	100	100	1	P	HSC	09/16/20 13:25	091620-4	2040383
7440-22-4	Silver	0.300	ug/L	U	0.300	1.00	1.00	1	MS	SKJ	09/22/20 19:30	200922-5	2040395
7440-23-5	Sodium	72200	ug/L		100	300	300	1	P	HSC	09/16/20 13:25	091620-4	2040383
7440-28-0	Thallium	0.600	ug/L	U	0.600	2.00	2.00	1	MS	SKJ	09/22/20 19:30	200922-5	2040395
7440-61-1	Uranium	10.4	ug/L		0.0670	0.200	0.200	1	MS	SKJ	09/24/20 12:18	200924-6	2040395
7440-62-2	Vanadium	21.1	ug/L		1.00	5.00	5.00	1	P	HSC	09/16/20 13:25	091620-4	2040383
7440-66-6	Zinc	4.25	ug/L	B	3.30	20.0	20.0	1	MS	SKJ	09/22/20 19:30	200922-5	2040395

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2040383	2040382	SW846 3005A	50	mL	50	mL	09/15/20	SM1
2040395	2040394	SW846 3005A	50	mL	50	mL	09/15/20	SM1
2047082	2047078	SW846 7470A Prep	20	mL	20	mL	10/02/20	AXS5

***Analytical Methods:**

P SW846 3005A/6010D
MS SW846 3005A/6020B
AV SW846 7470A

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL521241

CONTRACT: CPRC0F20052

METHOD TYPE: SW846

SAMPLE ID: 521241006

BASIS: As Received

DATE COLLECTED 10-SEP-20

CLIENT ID: B3XJK4

LEVEL: Low

DATE RECEIVED 14-SEP-20

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	50.0	50.0	1	MS	SKJ	09/22/20 19:33	200922-5	2040395
7440-36-0	Antimony	1.00	ug/L	U	1.00	3.00	3.00	1	MS	SKJ	09/22/20 19:33	200922-5	2040395
7440-38-2	Arsenic	2.00	ug/L	U	2.00	5.00	5.00	1	MS	SKJ	09/24/20 12:20	200924-6	2040395
7440-41-7	Beryllium	0.200	ug/L	U	0.200	0.500	0.500	1	MS	SKJ	09/23/20 15:09	200923-7	2040395
7440-43-9	Cadmium	0.300	ug/L	U	0.300	1.00	1.00	1	MS	SKJ	09/22/20 19:33	200922-5	2040395
7440-70-2	Calcium	50.0	ug/L	U	50.0	200	200	1	P	HSC	09/16/20 13:29	091620-4	2040383
7440-47-3	Chromium	3.00	ug/L	U	3.00	10.0	10.0	1	MS	SKJ	09/22/20 19:33	200922-5	2040395
7440-48-4	Cobalt	0.300	ug/L	U	0.300	1.00	1.00	1	MS	SKJ	09/22/20 19:33	200922-5	2040395
7440-50-8	Copper	0.300	ug/L	U	0.300	2.00	2.00	1	MS	SKJ	09/22/20 19:33	200922-5	2040395
7439-89-6	Iron	30.0	ug/L	U	30.0	100	100	1	P	HSC	09/16/20 13:29	091620-4	2040383
7439-92-1	Lead	0.500	ug/L	U	0.500	2.00	2.00	1	MS	SKJ	09/22/20 19:33	200922-5	2040395
7439-95-4	Magnesium	110	ug/L	U	110	300	300	1	P	HSC	09/16/20 13:29	091620-4	2040383
7439-96-5	Manganese	1.00	ug/L	U	1.00	5.00	5.00	1	MS	SKJ	09/22/20 19:33	200922-5	2040395
7439-97-6	Mercury	0.0670	ug/L	U	0.0670	0.200	0.200	1	AV	MTM1	10/05/20 15:09	100520W1-8	2047082
7440-02-0	Nickel	0.600	ug/L	U	0.600	2.00	2.00	1	MS	SKJ	09/22/20 19:33	200922-5	2040395
7440-09-7	Potassium	50.0	ug/L	U	50.0	150	150	1	P	HSC	09/17/20 10:31	091720-1	2040383
7782-49-2	Selenium	2.00	ug/L	U	2.00	5.00	5.00	1	MS	SKJ	09/22/20 19:33	200922-5	2040395
7440-21-3	Silicon	25.0	ug/L	U	25.0	100	100	1	P	HSC	09/16/20 13:29	091620-4	2040383
7440-22-4	Silver	0.300	ug/L	U	0.300	1.00	1.00	1	MS	SKJ	09/22/20 19:33	200922-5	2040395
7440-23-5	Sodium	100	ug/L	U	100	300	300	1	P	HSC	09/16/20 13:29	091620-4	2040383
7440-28-0	Thallium	0.600	ug/L	U	0.600	2.00	2.00	1	MS	SKJ	09/22/20 19:33	200922-5	2040395
7440-61-1	Uranium	0.0670	ug/L	U	0.0670	0.200	0.200	1	MS	SKJ	09/24/20 12:20	200924-6	2040395
7440-62-2	Vanadium	1.00	ug/L	U	1.00	5.00	5.00	1	P	HSC	09/16/20 13:29	091620-4	2040383
7440-66-6	Zinc	3.77	ug/L	B	3.30	20.0	20.0	1	MS	SKJ	09/22/20 19:33	200922-5	2040395

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2040383	2040382	SW846 3005A	50	mL	50	mL	09/15/20	SM1
2040395	2040394	SW846 3005A	50	mL	50	mL	09/15/20	SM1
2047082	2047078	SW846 7470A Prep	20	mL	20	mL	10/02/20	AXS5

***Analytical Methods:**

P SW846 3005A/6010D
MS SW846 3005A/6020B
AV SW846 7470A

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL521241

CONTRACT: CPRC0F20052

METHOD TYPE: SW846

SAMPLE ID: 521241007

BASIS: As Received

DATE COLLECTED 10-SEP-20

CLIENT ID: B3XJK6

LEVEL: Low

DATE RECEIVED 14-SEP-20

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	67.1	ug/L		19.3	50.0	50.0	1	MS	SKJ	09/22/20 19:36	200922-5	2040395
7440-36-0	Antimony	1.00	ug/L	U	1.00	3.00	3.00	1	MS	SKJ	09/22/20 19:36	200922-5	2040395
7440-38-2	Arsenic	19.9	ug/L		2.00	5.00	5.00	1	MS	SKJ	09/24/20 12:23	200924-6	2040395
7440-41-7	Beryllium	0.200	ug/L	U	0.200	0.500	0.500	1	MS	SKJ	09/23/20 15:11	200923-7	2040395
7440-43-9	Cadmium	0.300	ug/L	U	0.300	1.00	1.00	1	MS	SKJ	09/22/20 19:36	200922-5	2040395
7440-70-2	Calcium	36200	ug/L		50.0	200	200	1	P	HSC	09/16/20 13:33	091620-4	2040383
7440-47-3	Chromium	12.4	ug/L		3.00	10.0	10.0	1	MS	SKJ	09/22/20 19:36	200922-5	2040395
7440-48-4	Cobalt	0.300	ug/L	U	0.300	1.00	1.00	1	MS	SKJ	09/22/20 19:36	200922-5	2040395
7440-50-8	Copper	16.9	ug/L		0.300	2.00	2.00	1	MS	SKJ	09/22/20 19:36	200922-5	2040395
7439-89-6	Iron	192	ug/L		30.0	100	100	1	P	HSC	09/16/20 13:33	091620-4	2040383
7439-92-1	Lead	1.68	ug/L	B	0.500	2.00	2.00	1	MS	SKJ	09/22/20 19:36	200922-5	2040395
7439-95-4	Magnesium	8660	ug/L		110	300	300	1	P	HSC	09/16/20 13:33	091620-4	2040383
7439-96-5	Manganese	5.19	ug/L		1.00	5.00	5.00	1	MS	SKJ	09/22/20 19:36	200922-5	2040395
7439-97-6	Mercury	0.0670	ug/L	U	0.0670	0.200	0.200	1	AV	MTM1	10/05/20 15:10	100520W1-8	2047082
7440-02-0	Nickel	0.600	ug/L	U	0.600	2.00	2.00	1	MS	SKJ	09/22/20 19:36	200922-5	2040395
7440-09-7	Potassium	5930	ug/L		50.0	150	150	1	P	HSC	09/17/20 10:35	091720-1	2040383
7782-49-2	Selenium	2.00	ug/L	U	2.00	5.00	5.00	1	MS	SKJ	09/22/20 19:36	200922-5	2040395
7440-21-3	Silicon	14800	ug/L		25.0	100	100	1	P	HSC	09/16/20 13:33	091620-4	2040383
7440-22-4	Silver	0.300	ug/L	U	0.300	1.00	1.00	1	MS	SKJ	09/22/20 19:36	200922-5	2040395
7440-23-5	Sodium	85800	ug/L		100	300	300	1	P	HSC	09/16/20 13:33	091620-4	2040383
7440-28-0	Thallium	0.600	ug/L	U	0.600	2.00	2.00	1	MS	SKJ	09/22/20 19:36	200922-5	2040395
7440-61-1	Uranium	13.2	ug/L		0.0670	0.200	0.200	1	MS	SKJ	09/24/20 12:23	200924-6	2040395
7440-62-2	Vanadium	28.1	ug/L		1.00	5.00	5.00	1	P	HSC	09/16/20 13:33	091620-4	2040383
7440-66-6	Zinc	8.91	ug/L	B	3.30	20.0	20.0	1	MS	SKJ	09/22/20 19:36	200922-5	2040395

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2040383	2040382	SW846 3005A	50	mL	50	mL	09/15/20	SM1
2040395	2040394	SW846 3005A	50	mL	50	mL	09/15/20	SM1
2047082	2047078	SW846 7470A Prep	20	mL	20	mL	10/02/20	AXS5

***Analytical Methods:**

P SW846 3005A/6010D
MS SW846 3005A/6020B
AV SW846 7470A

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL521241

CONTRACT: CPRC0F20052

METHOD TYPE: SW846

SAMPLE ID: 521241008

BASIS: As Received

DATE COLLECTED 10-SEP-20

CLIENT ID: B3XJK8

LEVEL: Low

DATE RECEIVED 14-SEP-20

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	66.7	ug/L		19.3	50.0	50.0	1	MS	SKJ	09/22/20 19:39	200922-5	2040395
7440-36-0	Antimony	1.00	ug/L	U	1.00	3.00	3.00	1	MS	SKJ	09/22/20 19:39	200922-5	2040395
7440-38-2	Arsenic	20.0	ug/L		2.00	5.00	5.00	1	MS	SKJ	09/24/20 12:25	200924-6	2040395
7440-41-7	Beryllium	0.200	ug/L	U	0.200	0.500	0.500	1	MS	SKJ	09/23/20 15:12	200923-7	2040395
7440-43-9	Cadmium	0.300	ug/L	U	0.300	1.00	1.00	1	MS	SKJ	09/22/20 19:39	200922-5	2040395
7440-70-2	Calcium	35100	ug/L		50.0	200	200	1	P	HSC	09/16/20 13:36	091620-4	2040383
7440-47-3	Chromium	11.6	ug/L		3.00	10.0	10.0	1	MS	SKJ	09/22/20 19:39	200922-5	2040395
7440-48-4	Cobalt	0.300	ug/L	U	0.300	1.00	1.00	1	MS	SKJ	09/22/20 19:39	200922-5	2040395
7440-50-8	Copper	6.45	ug/L		0.300	2.00	2.00	1	MS	SKJ	09/22/20 19:39	200922-5	2040395
7439-89-6	Iron	195	ug/L		30.0	100	100	1	P	HSC	09/16/20 13:36	091620-4	2040383
7439-92-1	Lead	0.674	ug/L	B	0.500	2.00	2.00	1	MS	SKJ	09/22/20 19:39	200922-5	2040395
7439-95-4	Magnesium	8480	ug/L		110	300	300	1	P	HSC	09/16/20 13:36	091620-4	2040383
7439-96-5	Manganese	5.53	ug/L		1.00	5.00	5.00	1	MS	SKJ	09/22/20 19:39	200922-5	2040395
7439-97-6	Mercury	0.0670	ug/L	U	0.0670	0.200	0.200	1	AV	MTM1	10/05/20 15:12	100520W1-8	2047082
7440-02-0	Nickel	0.600	ug/L	U	0.600	2.00	2.00	1	MS	SKJ	09/22/20 19:39	200922-5	2040395
7440-09-7	Potassium	5800	ug/L		50.0	150	150	1	P	HSC	09/17/20 10:39	091720-1	2040383
7782-49-2	Selenium	2.00	ug/L	U	2.00	5.00	5.00	1	MS	SKJ	09/22/20 19:39	200922-5	2040395
7440-21-3	Silicon	14800	ug/L		25.0	100	100	1	P	HSC	09/16/20 13:36	091620-4	2040383
7440-22-4	Silver	0.300	ug/L	U	0.300	1.00	1.00	1	MS	SKJ	09/22/20 19:39	200922-5	2040395
7440-23-5	Sodium	83700	ug/L		100	300	300	1	P	HSC	09/16/20 13:36	091620-4	2040383
7440-28-0	Thallium	0.600	ug/L	U	0.600	2.00	2.00	1	MS	SKJ	09/22/20 19:39	200922-5	2040395
7440-61-1	Uranium	13.1	ug/L		0.0670	0.200	0.200	1	MS	SKJ	09/24/20 12:25	200924-6	2040395
7440-62-2	Vanadium	27.0	ug/L		1.00	5.00	5.00	1	P	HSC	09/16/20 13:36	091620-4	2040383
7440-66-6	Zinc	9.83	ug/L	B	3.30	20.0	20.0	1	MS	SKJ	09/22/20 19:39	200922-5	2040395

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2040383	2040382	SW846 3005A	50	mL	50	mL	09/15/20	SM1
2040395	2040394	SW846 3005A	50	mL	50	mL	09/15/20	SM1
2047082	2047078	SW846 7470A Prep	20	mL	20	mL	10/02/20	AXS5

***Analytical Methods:**

P SW846 3005A/6010D
MS SW846 3005A/6020B
AV SW846 7470A

Quality Control Summary

GEL LABORATORIES LLC

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

QC Summary

Report Date: October 6, 2020

Page 1 of 10

CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 521241

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	2040395										
QC1204642925	LCS										
Aluminum	2000			2080	ug/L		104	(80%-120%)	SKJ	09/22/20	18:32
Antimony	50.0			50.1	ug/L		100	(80%-120%)			
Arsenic	50.0			49.7	ug/L		99.3	(80%-120%)		09/24/20	11:34
Beryllium	50.0			57.8	ug/L		116	(80%-120%)		09/23/20	14:32
Cadmium	50.0			51.5	ug/L		103	(80%-120%)		09/22/20	18:32
Chromium	50.0			50.6	ug/L		101	(80%-120%)			
Cobalt	50.0			49.8	ug/L		99.6	(80%-120%)			
Copper	50.0			49.9	ug/L		99.8	(80%-120%)			
Lead	50.0			49.2	ug/L		98.4	(80%-120%)			
Manganese	50.0			49.6	ug/L		99.3	(80%-120%)			
Nickel	50.0			50.5	ug/L		101	(80%-120%)			
Selenium	50.0			50.9	ug/L		102	(80%-120%)			
Silver	50.0			53.0	ug/L		106	(80%-120%)			

GEL LABORATORIES LLC

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

QC Summary

Workorder: 521241

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	2040395										
Thallium	50.0			47.8	ug/L		95.5	(80%-120%)	SKJ	09/22/20	18:32
Uranium	50.0			52.2	ug/L		104	(80%-120%)		09/24/20	11:34
Zinc	50.0			50.5	ug/L		101	(80%-120%)		09/22/20	18:32
QC1204642924	MB										
Aluminum			U	19.3	ug/L					09/22/20	18:29
Antimony			U	1.00	ug/L						
Arsenic			U	2.00	ug/L					09/24/20	11:31
Beryllium			U	0.200	ug/L					09/23/20	14:30
Cadmium			U	0.300	ug/L					09/22/20	18:29
Chromium			U	3.00	ug/L						
Cobalt			U	0.300	ug/L						
Copper			U	0.300	ug/L						
Lead			U	0.500	ug/L						
Manganese			U	1.00	ug/L						
Nickel			U	0.600	ug/L						
Selenium			U	2.00	ug/L						

GEL LABORATORIES LLC

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

QC Summary

Workorder: 521241

Page 3 of 10

Parname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	2040395										
Silver			U	0.300	ug/L				SKJ	09/22/20	18:29
Thallium			U	0.600	ug/L						
Uranium			U	0.0670	ug/L					09/24/20	11:31
Zinc			U	3.30	ug/L					09/22/20	18:29
QC1204642926	521232002 MS										
Aluminum	2000	U	19.3	2090	ug/L		104	(75%-125%)		09/22/20	18:42
Antimony	50.0	U	1.00	51.9	ug/L		103	(75%-125%)			
Arsenic	50.0		6.70	55.7	ug/L		98	(75%-125%)		09/24/20	11:41
Beryllium	50.0	U	0.200	57.2	ug/L		114	(75%-125%)		09/23/20	14:38
Cadmium	50.0	U	0.300	51.7	ug/L		103	(75%-125%)		09/22/20	18:42
Chromium	50.0	B	3.25	53.6	ug/L		101	(75%-125%)			
Cobalt	50.0	U	0.300	50.0	ug/L		99.8	(75%-125%)			
Copper	50.0	B	0.487	47.5	ug/L		94	(75%-125%)			
Lead	50.0	B	0.759	50.4	ug/L		99.2	(75%-125%)			
Manganese	50.0	B	4.26	53.9	ug/L		99.3	(75%-125%)			
Nickel	50.0	U	0.600	49.1	ug/L		98.2	(75%-125%)			

GEL LABORATORIES LLC

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

QC Summary

Workorder: 521241

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	2040395										
Selenium	50.0	U	2.00	48.3	ug/L		93.7	(75%-125%)	SKJ	09/22/20	18:42
Silver	50.0	U	0.300	51.9	ug/L		104	(75%-125%)			
Thallium	50.0	U	0.600	48.3	ug/L		96.6	(75%-125%)			
Uranium	50.0		33.2	85.7	ug/L		105	(75%-125%)		09/24/20	11:41
Zinc	50.0	B	4.91	51.1	ug/L		92.4	(75%-125%)		09/22/20	18:42
QC1204642927 521232002 MSD											
Aluminum	2000	U	19.3	2110	ug/L	0.805	105	(0%-20%)		09/22/20	18:45
Antimony	50.0	U	1.00	50.9	ug/L	1.86	102	(0%-20%)			
Arsenic	50.0		6.70	56.9	ug/L	2.13	100	(0%-20%)		09/24/20	11:44
Beryllium	50.0	U	0.200	57.5	ug/L	0.431	115	(0%-20%)		09/23/20	14:40
Cadmium	50.0	U	0.300	51.5	ug/L	0.477	103	(0%-20%)		09/22/20	18:45
Chromium	50.0	B	3.25	54.1	ug/L	1.05	102	(0%-20%)			
Cobalt	50.0	U	0.300	50.1	ug/L	0.152	100	(0%-20%)			
Copper	50.0	B	0.487	48.5	ug/L	1.97	95.9	(0%-20%)			
Lead	50.0	B	0.759	50.2	ug/L	0.288	98.9	(0%-20%)			
Manganese	50.0	B	4.26	54.7	ug/L	1.42	101	(0%-20%)			

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QC Summary

Workorder: 521241

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	2040395										
Nickel	50.0	U	0.600	48.9	ug/L	0.359	97.8	(0%-20%)	SKJ	09/22/20	18:45
Selenium	50.0	U	2.00	50.0	ug/L	3.53	97.2	(0%-20%)			
Silver	50.0	U	0.300	51.3	ug/L	1.02	103	(0%-20%)			
Thallium	50.0	U	0.600	48.5	ug/L	0.496	97.1	(0%-20%)			
Uranium	50.0		33.2	88.1	ug/L	2.81	110	(0%-20%)		09/24/20	11:44
Zinc	50.0	B	4.91	50.9	ug/L	0.421	92	(0%-20%)		09/22/20	18:45
QC1204642928	521232002	SDILT									
Aluminum		U	5.35	DU	96.5	ug/L	N/A	(0%-20%)		09/22/20	18:51
Antimony		U	0.197	DU	5.00	ug/L	N/A	(0%-20%)			
Arsenic			6.70	DU	10.0	ug/L	N/A	(0%-20%)		09/24/20	11:49
Beryllium		U	0.00700	DU	1.00	ug/L	N/A	(0%-20%)		09/23/20	14:44
Cadmium		U	0.0220	DU	1.50	ug/L	N/A	(0%-20%)		09/22/20	18:51
Chromium		B	3.25	DU	15.0	ug/L	N/A	(0%-20%)			
Cobalt		U	0.0690	DU	1.50	ug/L	N/A	(0%-20%)			
Copper		B	0.487	DU	1.50	ug/L	N/A	(0%-20%)			
Lead		B	0.759	DU	2.50	ug/L	N/A	(0%-20%)			

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QC Summary

Workorder: 521241

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	2040395										
Manganese	B	4.26	DU	5.00	ug/L	N/A		(0%-20%)	SKJ	09/22/20	18:51
Nickel	U	-0.00700	DU	3.00	ug/L	N/A		(0%-20%)			
Selenium	U	1.43	DU	10.0	ug/L	N/A		(0%-20%)			
Silver	U	0.0100	DU	1.50	ug/L	N/A		(0%-20%)			
Thallium	U	-0.0270	DU	3.00	ug/L	N/A		(0%-20%)			
Uranium		33.2	D	6.67	ug/L	.642		(0%-20%)		09/24/20	11:49
Zinc	B	4.91	DU	16.5	ug/L	N/A		(0%-20%)		09/22/20	18:51
Metals Analysis-ICP											
Batch	2040383										
QC1204642892	LCS										
Calcium	5000			5210	ug/L		104	(80%-120%)	HSC	09/16/20	12:34
Iron	5000			5250	ug/L		105	(80%-120%)			
Magnesium	5000			5340	ug/L		107	(80%-120%)			
Potassium	5000			5340	ug/L		107	(80%-120%)		09/17/20	09:39
Silicon	5000			4710	ug/L		94.2	(80%-120%)		09/16/20	12:34
Sodium	5000			4910	ug/L		98.1	(80%-120%)			
Vanadium	500			509	ug/L		102	(80%-120%)			

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QC Summary

Workorder: 521241

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	2040383										
QC1204642891	MB										
Calcium			U	50.0	ug/L				HSC	09/16/20	12:30
Iron			U	30.0	ug/L						
Magnesium			U	110	ug/L						
Potassium			U	50.0	ug/L					09/17/20	09:36
Silicon			U	25.0	ug/L					09/16/20	12:30
Sodium			B	-114	ug/L						
Vanadium			U	1.00	ug/L						
QC1204642893	521232002 MS										
Calcium	5000	53200		60000	ug/L		N/A	(75%-125%)		09/16/20	12:40
Iron	5000	207		5330	ug/L		102	(75%-125%)			
Magnesium	5000	11000		16400	ug/L		107	(75%-125%)			
Potassium	5000	6000		11000	ug/L		100	(75%-125%)		09/17/20	09:45
Silicon	5000	16300		21500	ug/L		103	(75%-125%)		09/16/20	12:40
Sodium	5000	17200		22400	ug/L		105	(75%-125%)			
Vanadium	500	9.55		531	ug/L		104	(75%-125%)			

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QC Summary

Workorder: 521241

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	2040383										
QC1204642894	521232002	MSD									
Calcium	5000	53200		56000	ug/L	6.96	N/A	(0%-20%)	HSC	09/16/20	12:43
Iron	5000	207		5260	ug/L	1.35	101	(0%-20%)			
Magnesium	5000	11000		15600	ug/L	4.73	92.3	(0%-20%)			
Potassium	5000	6000		10700	ug/L	3.06	93.7	(0%-20%)		09/17/20	09:48
Silicon	5000	16300	N	20100	ug/L	6.83	74.2*	(0%-20%)		09/16/20	12:43
Sodium	5000	17200		21200	ug/L	5.66	80	(0%-20%)			
Vanadium	500	9.55		514	ug/L	3.22	101	(0%-20%)			
QC1204647646	521232002	PS									
Silicon	5000	16300		20900	ug/L		90.7	(75%-125%)		09/21/20	08:02
QC1204642895	521232002	SDILT									
Calcium		53200	D	10500	ug/L	.934		(0%-20%)		09/16/20	12:46
Iron		207	BD	40.9	ug/L	1.33		(0%-20%)			
Magnesium		11000	D	2220	ug/L	.499		(0%-20%)			
Potassium		6000	D	1140	ug/L	5.4		(0%-20%)		09/23/20	05:45
Silicon		16300	D	3240	ug/L	.826		(0%-20%)		09/16/20	12:46
Sodium		17200	D	3420	ug/L	.457		(0%-20%)			

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QC Summary

Workorder: 521241

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	2040383										
Vanadium		9.55	BD	1.96	ug/L	2.75		(0%-20%)	HSC	09/16/20	12:46
Metals Analysis-Mercury											
Batch	2047082										
QC1204658054	521236006	DUP									
Mercury		U	0.0670	U	0.0670	ug/L	N/A		MTM1	10/05/20	14:52
QC1204658053	LCS										
Mercury		2.00			1.92	ug/L	95.8	(80%-120%)		10/05/20	14:48
QC1204658052	MB										
Mercury			U	0.0670	ug/L					10/05/20	14:47
QC1204658055	521236006	MS									
Mercury		2.00	U	0.0670	1.91	ug/L	94.9	(75%-125%)		10/05/20	14:57
QC1204658056	521236006	SDILT									
Mercury		U	0.0150	DU	0.335	ug/L	N/A	(0%-10%)		10/05/20	14:58

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

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QC Summary

Workorder: 521241

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Y	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Z	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										

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

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

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

General Chem Analysis

Case Narrative

**General Chemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company
SDG #: GEL521241
Work Order #: 521241**

Product: Carbon, Total Organic

Analytical Method: SW846 9060A

Analytical Procedure: GL-GC-E-093 REV# 16

Analytical Batch: 2040409

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
521241005	B3XJK2
521241006	B3XJK4
521241007	B3XJK6
521241008	B3XJK8
1204642960	Method Blank (MB)
1204642961	Laboratory Control Sample (LCS)
1204642962	521241005(B3XJK2) Sample Duplicate (DUP)
1204642963	521241005(B3XJK2) Post Spike (PS)

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: Ion Chromatography**Analytical Method:** 9056_ANIONS_IC**Analytical Procedure:** GL-GC-E-086 REV# 28**Analytical Batch:** 2040345

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

GEL Sample ID#	Client Sample Identification
521241001	B3XJK3
521241002	B3XJK5
521241003	B3XJK7
521241004	B3XJK9
1204642822	Method Blank (MB)
1204642823	Laboratory Control Sample (LCS)
1204642824	521228001(NonSDG) Sample Duplicate (DUP)
1204642825	521228001(NonSDG) Post Spike (PS)

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**Holding Times**

Samples (See Below) were received by the laboratory outside of the method specified holding time. The data is qualified.

Sample	Analyte	Value
1204642824 (Non SDG 521228001DUP)	Nitrate, Nitrite and Ortho-phosphate	Received 14-SEP-20, out of holding 12-SEP-20
1204642825 (Non SDG 521228001PS)	Nitrate, Nitrite and Ortho-phosphate	Received 14-SEP-20, out of holding 12-SEP-20
521241001 (B3XJK3)	Nitrate, Nitrite and Ortho-phosphate	Received 14-SEP-20, out of holding 12-SEP-20
521241002 (B3XJK5)	Nitrate, Nitrite and Ortho-phosphate	Received 14-SEP-20, out of holding 12-SEP-20
521241003 (B3XJK7)	Nitrate, Nitrite and Ortho-phosphate	Received 14-SEP-20, out of holding 12-SEP-20
521241004 (B3XJK9)	Nitrate, Nitrite and Ortho-phosphate	Received 14-SEP-20, out of holding 12-SEP-20

Sample Dilutions

The following samples 1204642824 (Non SDG 521228001DUP), 1204642825 (Non SDG 521228001PS), 521241001 (B3XJK3), 521241003 (B3XJK7) and 521241004 (B3XJK9) were diluted because target analyte concentrations exceeded the calibration range. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	521241		
	001	003	004
Chloride	10X	5X	5X
Nitrate	10X	5X	5X
Sulfate	10X	5X	5X

Product: Solids, Total Dissolved

Analytical Method: 160.1_TDS

Analytical Procedure: GL-GC-E-001 REV# 16

Analytical Batch: 2040959

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
521241005	B3XJK2
521241006	B3XJK4
521241007	B3XJK6
521241008	B3XJK8
1204644081	Method Blank (MB)
1204644082	Laboratory Control Sample (LCS)
1204644085	521241005(B3XJK2) Sample Duplicate (DUP)

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

Data Summary:

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

Product: Solids, Total Suspended

Analytical Method: SM 2540D

Analytical Procedure: GL-GC-E-012 REV# 16

Analytical Batch: 2041447

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
521241005	B3XJK2
521241006	B3XJK4
521241007	B3XJK6
521241008	B3XJK8
1204645271	Method Blank (MB)
1204645272	Laboratory Control Sample (LCS)
1204645273	521164003(NonSDG) Sample Duplicate (DUP)

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

Data Summary:

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

Miscellaneous Information

Additional Comments

Sample filtration took > 10 minutes; therefore as prescribed in the method, a reduced aliquot was used. 1204645273 (Non SDG 521164003DUP). A reduced aliquot was used due to limited volume. The client did not provide an entire 1 liter aliquot. 521241005 (B3XJK2), 521241006 (B3XJK4), 521241007 (B3XJK6) and 521241008 (B3XJK8).

Product: pH**Analytical Method:** SW846 9040C**Analytical Procedure:** GL-GC-E-008 REV# 24**Analytical Batch:** 2036664

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

GEL Sample ID#	Client Sample Identification
521241005	B3XJK2
521241006	B3XJK4
521241007	B3XJK6
521241008	B3XJK8
1204634737	Laboratory Control Sample (LCS)
1204636887	521241008(B3XJK8) Sample Duplicate (DUP)

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

Data Summary:

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

Technical Information**Holding Times**

Samples (See Below) were received by the laboratory outside of the method specified holding time. The data is qualified.

Sample	Analyte	Value
1204636887 (B3XJK8DUP)		Received 12-SEP-20, out of holding 10-SEP-20
521241005 (B3XJK2)		Received 14-SEP-20, out of holding 10-SEP-20
521241006 (B3XJK4)		Received 14-SEP-20, out of holding 10-SEP-20
521241007 (B3XJK6)		Received 14-SEP-20, out of holding 10-SEP-20
521241008 (B3XJK8)		Received 14-SEP-20, out of holding 10-SEP-20

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: GEL521241 GEL Work Order: 521241

The Qualifiers in this report are defined as follows:

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

D Results are reported from a diluted aliquot of sample.


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

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

Review/Validation

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

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

Signature:**Name: Kristen Mizzell****Date: 05 OCT 2020****Title: Team Leader**

Sample Data Summary

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: October 5, 2020

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF F20-052

Client Sample ID: B3XJK3 Project: CPRC0F20052
 Sample ID: 521241001 Client ID: CPRC001
 Matrix: WATER
 Collect Date: 10-SEP-20 09:13
 Receive Date: 14-SEP-20
 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: COMMON + (Add-on) "As Received"												
Fluoride		660	33.0	500	ug/L		1	LXA2	09/14/20	1725	2040345	1
Nitrite-N	UX	33.0	33.0	100	ug/L		1					
Phosphorus in phosphate	UX	67.0	67.0	500	ug/L		1					
Chloride	D	65900	670	2000	ug/L		10	LXA2	09/15/20	1116	2040345	2
Nitrate-N	DX	11500	330	1000	ug/L		10					
Sulfate	D	20100	1330	4000	ug/L		10					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	9056_ANIONS_IC	

Notes:

Column headers are defined as follows:

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

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: October 5, 2020

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF F20-052

Client Sample ID: B3XJK5 Project: CPRC0F20052
 Sample ID: 521241002 Client ID: CPRC001
 Matrix: WATER
 Collect Date: 10-SEP-20 07:15
 Receive Date: 14-SEP-20
 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: COMMON + (Add-on) "As Received"												
Chloride		432	67.0	200	ug/L		1	LXA2	09/14/20	1752	2040345	1
Fluoride	U	33.0	33.0	500	ug/L		1					
Nitrate-N	UX	33.0	33.0	100	ug/L		1					
Nitrite-N	UX	33.0	33.0	100	ug/L		1					
Phosphorus in phosphate	UX	67.0	67.0	500	ug/L		1					
Sulfate	U	133	133	500	ug/L		1					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	

Notes:

Column headers are defined as follows:

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

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: October 5, 2020

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF F20-052

Client Sample ID: B3XJK7 Project: CPRC0F20052
 Sample ID: 521241003 Client ID: CPRC001
 Matrix: WATER
 Collect Date: 10-SEP-20 09:47
 Receive Date: 14-SEP-20
 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: COMMON + (Add-on) "As Received"												
Fluoride		507	33.0	500	ug/L		1	LXA2	09/14/20	1819	2040345	1
Nitrite-N	UX	33.0	33.0	100	ug/L		1					
Phosphorus in phosphate	UX	67.0	67.0	500	ug/L		1					
Chloride	D	16100	335	1000	ug/L		5	LXA2	09/15/20	1143	2040345	2
Nitrate-N	DX	8570	165	500	ug/L		5					
Sulfate	D	35600	665	2000	ug/L		5					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	9056_ANIONS_IC	

Notes:

Column headers are defined as follows:

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

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: October 5, 2020

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF F20-052

Client Sample ID: B3XJK9 Project: CPRC0F20052
 Sample ID: 521241004 Client ID: CPRC001
 Matrix: WATER
 Collect Date: 10-SEP-20 09:47
 Receive Date: 14-SEP-20
 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: COMMON + (Add-on) "As Received"												
Fluoride		506	33.0	500	ug/L		1	LXA2	09/14/20	1846	2040345	1
Nitrite-N	UX	33.0	33.0	100	ug/L		1					
Phosphorus in phosphate	UX	67.0	67.0	500	ug/L		1					
Chloride	D	16200	335	1000	ug/L		5	LXA2	09/15/20	1210	2040345	2
Nitrate-N	DX	8110	165	500	ug/L		5					
Sulfate	D	35700	665	2000	ug/L		5					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	9056_ANIONS_IC	

Notes:

Column headers are defined as follows:

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

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: October 5, 2020

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF F20-052

Client Sample ID: B3XJK2
 Sample ID: 521241005
 Matrix: WATER
 Collect Date: 10-SEP-20 09:13
 Receive Date: 14-SEP-20
 Collector: Client
 Project: CPRC0F20052
 Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis												
9060_TOC: COMMON "As Received"												
Total Organic Carbon #1		1490	330	1000	ug/L		1	TSM	09/15/20	2242	2040409	1
Total Organic Carbon #2		1520	330	1000	ug/L		1					
Total Organic Carbon #3		1530	330	1000	ug/L		1					
Total Organic Carbon #4		1530	330	1000	ug/L		1					
Total Organic Carbon Average		1520	330	1000	ug/L		1					
Solids Analysis												
160.1_TDS:COMMON "As Received"												
Total Dissolved Solids		413000	3400	14300	ug/L			KLP1	09/17/20	1315	2040959	2
2540D_TSS:COMMON "As Received"												
Total Suspended Solids	U	0.655	0.655	2.87	mg/L			KLP1	09/17/20	0944	2041447	3
Titration and Ion Analysis												
9040_pH (AQUEOUS): COMMON "As Received"												
pH at Temp 16.3C	X	7.97	0.0100	0.100	SU		1	HXC1	09/15/20	1245	2036664	4

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060A	
2	160.1_TDS	
3	SM 2540D	
4	SW846 9040C	

Notes:

Column headers are defined as follows:

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

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: October 5, 2020

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F20-052

Client Sample ID: B3XJK4	Project: CPRC0F20052
Sample ID: 521241006	Client ID: CPRC001
Matrix: WATER	
Collect Date: 10-SEP-20 07:15	
Receive Date: 14-SEP-20	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis												
9060_TOC: COMMON "As Received"												
Total Organic Carbon #1	U	330	330	1000	ug/L		1	TSM	09/16/20	0037	2040409	1
Total Organic Carbon #2	U	330	330	1000	ug/L		1					
Total Organic Carbon #3	U	330	330	1000	ug/L		1					
Total Organic Carbon #4	U	330	330	1000	ug/L		1					
Total Organic Carbon Average	U	330	330	1000	ug/L		1					
Solids Analysis												
160.1_TDS:COMMON "As Received"												
Total Dissolved Solids	U	3400	3400	14300	ug/L			KLP1	09/17/20	1315	2040959	2
2540D_TSS:COMMON "As Received"												
Total Suspended Solids	U	0.613	0.613	2.69	mg/L			KLP1	09/17/20	0944	2041447	3
Titration and Ion Analysis												
9040_pH (AQUEOUS): COMMON "As Received"												
pH at Temp 16.5C	X	5.84	0.0100	0.100	SU		1	HXC1	09/15/20	1246	2036664	4

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060A	
2	160.1_TDS	
3	SM 2540D	
4	SW846 9040C	

Notes:Column headers are defined as follows:

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

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: October 5, 2020

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF F20-052

Client Sample ID: B3XJK6 Project: CPRC0F20052
 Sample ID: 521241007 Client ID: CPRC001
 Matrix: WATER
 Collect Date: 10-SEP-20 09:47
 Receive Date: 14-SEP-20
 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis												
9060_TOC: COMMON "As Received"												
Total Organic Carbon #1		1760	330	1000	ug/L		1	TSM	09/16/20	0116	2040409	1
Total Organic Carbon #2		1790	330	1000	ug/L		1					
Total Organic Carbon #3		1810	330	1000	ug/L		1					
Total Organic Carbon #4		1790	330	1000	ug/L		1					
Total Organic Carbon Average		1780	330	1000	ug/L		1					
Solids Analysis												
160.1_TDS:COMMON "As Received"												
Total Dissolved Solids		373000	3400	14300	ug/L			KLP1	09/17/20	1315	2040959	2
2540D_TSS:COMMON "As Received"												
Total Suspended Solids		2.87	0.606	2.66	mg/L			KLP1	09/17/20	0944	2041447	3
Titration and Ion Analysis												
9040_pH (AQUEOUS): COMMON "As Received"												
pH at Temp 17.0C	X	8.23	0.0100	0.100	SU		1	HXC1	09/15/20	1250	2036664	4

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060A	
2	160.1_TDS	
3	SM 2540D	
4	SW846 9040C	

Notes:

Column headers are defined as follows:

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

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: October 5, 2020

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF F20-052

Client Sample ID: B3XJK8 Project: CPRC0F20052
 Sample ID: 521241008 Client ID: CPRC001
 Matrix: WATER
 Collect Date: 10-SEP-20 09:47
 Receive Date: 14-SEP-20
 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis												
9060_TOC: COMMON "As Received"												
Total Organic Carbon #1		1750	330	1000	ug/L		1	TSM	09/16/20	0154	2040409	1
Total Organic Carbon #2		1800	330	1000	ug/L		1					
Total Organic Carbon #3		1810	330	1000	ug/L		1					
Total Organic Carbon #4		1790	330	1000	ug/L		1					
Total Organic Carbon Average		1790	330	1000	ug/L		1					
Solids Analysis												
160.1_TDS:COMMON "As Received"												
Total Dissolved Solids		350000	3400	14300	ug/L			KLP1	09/17/20	1315	2040959	2
2540D_TSS:COMMON "As Received"												
Total Suspended Solids	B	1.76	0.626	2.75	mg/L			KLP1	09/17/20	0944	2041447	3
Titration and Ion Analysis												
9040_pH (AQUEOUS): COMMON "As Received"												
pH at Temp 17.1C	X	8.25	0.0100	0.100	SU		1	HXC1	09/15/20	1251	2036664	4

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060A	
2	160.1_TDS	
3	SM 2540D	
4	SW846 9040C	

Notes:

Column headers are defined as follows:

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

Quality Control Summary

GEL LABORATORIES LLC

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

QC Summary

Report Date: October 5, 2020

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CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 521241

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Carbon Analysis											
Batch	2040409										
QC1204642962	521241005	DUP									
Total Organic Carbon Average		1520		1520	ug/L	0.526 ^		(+/-1000)	TSM	09/15/20	23:21
QC1204642961	LCS										
Total Organic Carbon Average	10000			9500	ug/L		95	(80%-120%)		09/15/20	22:33
QC1204642960	MB										
Total Organic Carbon Average			U	330	ug/L					09/15/20	22:23
QC1204642963	521241005	PS									
Total Organic Carbon Average	10.0	1.52		11.5	mg/L		99.8	(75%-125%)		09/15/20	23:59
Ion Chromatography											
Batch	2040345										
QC1204642824	521228001	DUP									
Chloride	D	20800	D	20800	ug/L	0.0048		(0%-20%)	LXA2	09/15/20	09:28
Fluoride		260		264	ug/L	1.41 ^		(+/-100)		09/14/20	19:13
Nitrate-N	DX	37400	DX	37400	ug/L	0.00267		(0%-20%)		09/15/20	09:28
Nitrite-N	BX	62.4	BX	63.3	ug/L	1.43 ^		(+/-100)		09/14/20	19:13
Phosphorus in phosphate	UX	67.0	UX	67.0	ug/L	N/A					
Sulfate	D	54100	D	54100	ug/L	0.00185		(0%-20%)		09/15/20	09:28
QC1204642823	LCS										
Chloride	5000			4650	ug/L		93	(80%-120%)		09/14/20	21:28

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QC Summary

Workorder: 521241

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography											
Batch	2040345										
Fluoride	2500			2410	ug/L		96.4	(80%-120%)	LXA2	09/14/20	21:28
Nitrate-N	2500			2370	ug/L		94.8	(80%-120%)			
Nitrite-N	2500			2400	ug/L		96	(80%-120%)			
Phosphorus in phosphate	1250			1320	ug/L		105	(80%-120%)			
Sulfate	10000			9530	ug/L		95.3	(80%-120%)			
QC1204642822	MB										
Chloride			U	67.0	ug/L					09/14/20	21:01
Fluoride			U	33.0	ug/L						
Nitrate-N			U	33.0	ug/L						
Nitrite-N			U	33.0	ug/L						
Phosphorus in phosphate			U	67.0	ug/L						
Sulfate			U	133	ug/L						
QC1204642825	521228001 PS										
Chloride	5.00	D	2.08	D	7.13	mg/L	101	(75%-125%)		09/15/20	09:55
Fluoride	2.50		0.260		2.70	mg/L	97.8	(75%-125%)		09/14/20	19:40
Nitrate-N	2.50	DX	3.74	DX	6.51	mg/L	111	(75%-125%)		09/15/20	09:55
Nitrite-N	2.50	BX	0.0624	X	2.47	mg/L	96.3	(75%-125%)		09/14/20	19:40

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QC Summary

Workorder: 521241

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography											
Batch 2040345											
Phosphorus in phosphate	1.25 UX	0.000	X	1.07	mg/L		85.8	(75%-125%)	LXA2	09/14/20	19:40
Sulfate	10.0 D	5.41	D	15.6	mg/L		102	(75%-125%)		09/15/20	09:55
Solids Analysis											
Batch 2040959											
QC1204644085 521241005 DUP											
Total Dissolved Solids		413000		419000	ug/L	1.37		(0%-20%)	KLP1	09/17/20	13:15
QC1204644082 LCS											
Total Dissolved Solids	300000			290000	ug/L		96.7	(80%-120%)		09/17/20	13:15
QC1204644081 MB											
Total Dissolved Solids			U	3400	ug/L					09/17/20	13:15
Batch 2041447											
QC1204645273 521164003 DUP											
Total Suspended Solids		65.0		62.0	mg/L	4.72 ^		(+/-25.0)	KLP1	09/17/20	09:44
QC1204645272 LCS											
Total Suspended Solids	500			496	mg/L		99.2	(80%-120%)		09/17/20	09:44
QC1204645271 MB											
Total Suspended Solids			U	1.14	mg/L					09/17/20	09:44
Titration and Ion Analysis											
Batch 2036664											
QC1204636887 521241008 DUP											
pH	X	8.25	X	8.24	SU	0.121		(0%-5%)	HXC1	09/15/20	12:52
QC1204634737 LCS											
pH	7.00			6.98	SU		99.7	(80%-120%)		09/15/20	12:07

Notes:

GEL LABORATORIES LLC

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QC Summary

Workorder: 521241

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
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The Qualifiers in this report are defined as follows:

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

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

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

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

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company
SDG #: GEL521241
Work Order #: 521241

Product: SMR_ALPHABETA_GPC
Analytical Method: ALPHABETA_GPC
Analytical Procedure: GL-RAD-A-001 REV# 20
Analytical Batch: 2047542

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
521241005	B3XJK2
521241006	B3XJK4
521241007	B3XJK6
521241008	B3XJK8
1204658972	Method Blank (MB)
1204658973	522639003(NonSDG) Sample Duplicate (DUP)
1204658974	522639003(NonSDG) Matrix Spike (MS)
1204658975	522639003(NonSDG) Matrix Spike Duplicate (MSD)
1204658976	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-prep/Re-analysis

Samples were re-prepped due to high relative percent difference/relative error ratio. The re-analysis is being reported.

Gross Alpha/Beta Preparation Information

High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating.

Recounts

Sample 1204658975 (Non SDG 522639003MSD) was recounted due to high recovery. The recount is reported.

Miscellaneous Information

Additional Comments

The matrix spike and matrix spike duplicate, 1204658974 (Non SDG 522639003MS) and 1204658975 (Non SDG 522639003MSD), aliquots were 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: GEL521241 GEL Work Order: 521241

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:** Kate Gellatly**Date:** 08 OCT 2020**Title:** Analyst I

Sample Data Summary

Rad
Certificate of Analysis
Sample Summary

SDG Number: GEL521241	Client: CPRC001	Project: CPRC0F20052
Lab Sample ID: 521241005	Date Collected: 09/10/2020 09:13	Matrix: WATER
	Date Received: 09/14/2020 09:10	
Client ID: B3XJK2	Method: ALPHABETA_GPC	Prep Basis: "As Received"
Batch ID: 2047542	Analyst: HXB2	SOP Ref: GL-RAD-A-001
Run Date: 10/06/2020 07:24	Aliquot: 150 mL	Instrument: LB4100A1
Data File: AB2047542r3.xls	Prep Method: EPA 900.0/SW846 9310	Count Time: 130 min
Prep Batch: 2047542		
Prep Date: 10/05/2020 08:01		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
12587-46-1	Alpha ALPHA		6.85	pCi/L	+/-3.04	3.26	2.89	3.00
12587-47-2	Beta BETA		8.70	pCi/L	+/-1.84	2.35	2.32	4.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

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: GEL521241	Client: CPRC001	Project: CPRC0F20052
Lab Sample ID: 521241006	Date Collected: 09/10/2020 07:15	Matrix: WATER
	Date Received: 09/14/2020 09:10	
Client ID: B3XJK4	Method: ALPHABETA_GPC	Prep Basis: "As Received"
Batch ID: 2047542	Analyst: HXB2	SOP Ref: GL-RAD-A-001
Run Date: 10/06/2020 07:24	Aliquot: 150 mL	Instrument: LB4100A2
Data File: AB2047542r3.xls	Prep Method: EPA 900.0/SW846 9310	Count Time: 130 min
Prep Batch: 2047542		
Prep Date: 10/05/2020 08:01		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
12587-46-1	Alpha ALPHA	U	-0.382	pCi/L	+/-0.600	0.600	1.49	3.00
12587-47-2	Beta BETA	U	-0.214	pCi/L	+/-1.18	1.18	2.14	4.00

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: GEL521241	Client: CPRC001	Project: CPRC0F20052
Lab Sample ID: 521241007	Date Collected: 09/10/2020 09:47	Matrix: WATER
	Date Received: 09/14/2020 09:10	
Client ID: B3XJK6	Method: ALPHABETA_GPC	Prep Basis: "As Received"
Batch ID: 2047542	Analyst: HXB2	SOP Ref: GL-RAD-A-001
Run Date: 10/06/2020 07:24	Aliquot: 150 mL	Instrument: LB4100A3
Data File: AB2047542r3.xls	Prep Method: EPA 900.0/SW846 9310	Count Time: 130 min
Prep Batch: 2047542		
Prep Date: 10/05/2020 08:01		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
12587-46-1	Alpha ALPHA		9.58	pCi/L	+/-3.24	3.64	2.91	3.00
12587-47-2	Beta BETA		10.1	pCi/L	+/-1.98	2.59	2.47	4.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

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: GEL521241	Client: CPRC001	Project: CPRC0F20052
Lab Sample ID: 521241008	Date Collected: 09/10/2020 09:47	Matrix: WATER
	Date Received: 09/14/2020 09:10	
Client ID: B3XJK8	Method: ALPHABETA_GPC	Prep Basis: "As Received"
Batch ID: 2047542	Analyst: HXB2	SOP Ref: GL-RAD-A-001
Run Date: 10/06/2020 07:25	Aliquot: 150 mL	Instrument: LB4100H3
Data File: AB2047542r3.xls	Prep Method: EPA 900.0/SW846 9310	Count Time: 180 min
Prep Batch: 2047542		
Prep Date: 10/05/2020 08:01		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
12587-46-1	Alpha ALPHA		8.05	pCi/L	+/-2.72	3.02	2.63	3.00
12587-47-2	Beta BETA		8.60	pCi/L	+/-1.59	2.12	2.05	4.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

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: October 8, 2020
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Client : CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Workorder: 521241

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gas Flow									
Batch	2047542								
QC1204658972	MB								
Alpha			U	0.860	pCi/L			HXB2	10/06/2008:38
				Uncert: +/-1.21					
				TPU: +/-1.22					
Beta			U	0.0946	pCi/L				
				Uncert: +/-1.45					
				TPU: +/-1.45					
QC1204658973	522639003	DUP							
Alpha		U	0.493	U	0.606	pCi/L			10/06/2008:51
			Uncert: +/-1.40		+/-1.35	RPD: 0	N/A		
			TPU: +/-1.40		+/-1.35	RER: 0.113	(0-2)		
Beta			68.1		76.4	pCi/L			
			Uncert: +/-3.21		+/-4.47	RPD: 12	(0%-20%)		
			TPU: +/-11.4		+/-13.5	RER: 0.922	(0-2)		
QC1204658974	522639003	MS							
Alpha		505 U	0.493		506	pCi/L	REC: 100	(75%-125%)	10/06/2007:29
			Uncert: +/-1.40		+/-52.8				
			TPU: +/-1.40		+/-101				
Beta		1750	68.1		1790	pCi/L	REC: 98.4	(75%-125%)	
			Uncert: +/-3.21		+/-63.6				
			TPU: +/-11.4		+/-306				
QC1204658975	522639003	MSD							
Alpha		505 U	0.493		509	pCi/L	REC: 101	(75%-125%)	10/07/2011:07
			Uncert: +/-1.40		+/-53.0		RPD: 1	(0%-20%)	
			TPU: +/-1.40		+/-98.6		RER: 0.0447	(0-2)	
Beta		1750	68.1		1780	pCi/L	REC: 97.9	(75%-125%)	
			Uncert: +/-3.21		+/-65.0		RPD: 0	(0%-20%)	
			TPU: +/-11.4		+/-298		RER: 0.0397	(0-2)	
QC1204658976	LCS								
Alpha		84.2			90.1	pCi/L	REC: 107	(80%-120%)	10/06/2007:29
			Uncert: +/-9.12						
			TPU: +/-18.4						
Beta		291			291	pCi/L	REC: 100	(80%-120%)	
			Uncert: +/-10.5						
			TPU: +/-50.5						

Notes:

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

The Qualifiers in this report are defined as follows:

- * Duplicate analysis not within control limits
- + Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
- < Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide
- > Result greater than quantifiable range or greater than upper limit of the analysis range

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QC Summary

Workorder: 521241

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Parname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date	Time
B										
B										
C										
D										
E										
M										
N										
S										
U										
UX										
W										
X										
Y										
Z										
o										

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.