

June 29, 2017



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June 29, 2017

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

Re: CHPRC SAF FRC16-03
Work Order: 424740
SDG: GEL424740

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 06, 2017. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

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

Sincerely,

B Luthman
Brielle Luthman for
Heather Shaffer
Project Manager

Purchase Order: 304121 - 7H
Chain of Custody: FRC16-03-017 and FRC16-03-022
Enclosures

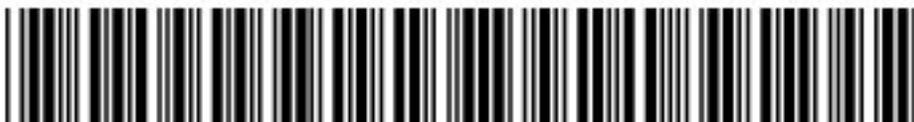


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Case Narrative

June 29, 2017

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF FRC16-03
SDG: GEL424740

June 29, 2017

Laboratory Identification:

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

Summary

Sample receipt

The sample(s) arrived at GEL Laboratories, LLC, Charleston, South Carolina on June 06, 2017, for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

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

Sample Identification

The laboratory received the following samples:

Laboratory Identification	Sample Description
424740001	B3B899
424740002	B3B8B4

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: Radiochemistry.

We certify that this package is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager (or designee) and the laboratory's client services representative as verified by their signatures on this report.

June 29, 2017

B. Luthman
Brielle Luthman for
Heather Shaffer
Project Manager

June 29, 2017

Radiochemistry

Technical Case Narrative

CH2MHill Plateau Remediation Company (CPRC)

SDG #: GEL424740

Work Order #: 424740

GAMMA_GS:COMMON + Add-on

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

SRTOT_SEP_PRECIP_GPC: COMMON

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

Technical Information

Recounts

Sample 1203808198 (MB) was recounted due to a suspected blank false positive. The recount is reported. Samples 1203808199 (B3B8B4DUP), 424740001 (B3B899) and 424740002 (B3B8B4) were recounted to confirm sample results. The second counts are reported.

TC99_EIE_LSC: COMMON

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

TRITIUM_DIST_LSC: COMMON

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

Quality Control (QC) Information

QC Information

The Matrix Spike 1203811614 (B3B899MS) did not meet recovery requirements due to the sample activity being greater than five times the spiked nominal concentration.

C14_LSC: COMMON

June 29, 2017

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

Certification Statement

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

Chain of Custody and Supporting Documentation

June 29, 2017

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST		FRC16-03-017	PAGE 1 OF 1
COLLECTOR	M. Downing	COMPANY CONTACT	MEDLEY, HA	TELEPHONE NO.	373-6909
SAMPLING LOCATION	ERC-96-030	PROJECT DESIGNATION	ERDF Leachate Quarterly Sampling - water	PROJECT COORDINATOR	MEDLEY, HA
ERDF LEACHATE		FIELD LOGBOOK NO.	HNF-N-876 / N/A	SAF NO.	FRC16-03
ICE CHEST NO.		OFFSITE PROPERTY NO.	PTR# 7989	COA	304121
SHIPPED TO	GEL Laboratories, LLC	BILL OF LADING/AIR BILL NO. Fed Ex 7793 0294 4030			

MATRIX*	PRESERVATION	HOLDING TIME	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	HNO3 to pH		HNO3 to pH	HNO3 to pH	HNO3 to pH
							None	<2			
A=Air DL=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.											
SPECIAL HANDLING AND/OR STORAGE NA											
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME								
B3B899	WATER	6-5-17	0750								

424740

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	(1) GAMMA_GS: COMMON; GAMMA_GS: COMMON (Add-on)	
M. Downing / M. Downing	6-5-17 0845	P.R. Edwards and Son	0845	{Americium-241};	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
P.R. Edwards and Son	6-5-17 1500	Fed Ex	6-5-17		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
	FED EX	STACY BOON	6-6-17 9:05		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	
PRINTED ON 5/18/2017		TRVL NUM = TRVL-17-140		A-6003-618 (REV 2)	

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June 29, 2017

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		FRC16-03-022	PAGE 1 OF 1
COLLECTOR <i>M. Downing</i>	COMPANY CONTACT MEDLEY, HA	TELEPHONE NO. 373-6909	PROJECT COORDINATOR MEDLEY, HA	PRICE CODE 7H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION ERDF LEACHATE DUJ	PROJECT DESIGNATION ERDF Leachate Quarterly Sampling - water	FIELD LOGBOOK NO. <i>HNF-N-876 1</i>	SAF NO. FRC16-03	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT FEDERAL EXPRESS
ICE CHEST NO. <i>ERC-96-030</i>	ACTUAL SAMPLE DEPTH <i>N/A</i>	OFFSITE PROPERTY NO. <i>PTR # 7989</i>	COA 304121	BILL OF LADING/AIR BILL NO. <i>Fed Ex 7793 0294 4030</i>	

MATRIX*	SPECIAL SAMPLE HAZARDS/ REMARKS	PRESERVATION	HNO3 to pH	HNO3 to pH	HNO3 to pH	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	C14_LSC: COMMON; TRITIUM_DIST _LSC: COMMON;	SRTOT_SEP_PR ECP_GRC: COMMON;	TC99_EIE_LSC: COMMON;
			<2	<2	<2						
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	None	<2	<2	<2	1	1L	SEE ITEM (1) IN SPECIAL INSTRUCTIONS			
B3B8B4	WATER	6 Months	6 Months	6 Months	6 Months	4	1L				
		G/P	G/P	G/P	G/P	1	1L				
		1	1	1	1						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
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		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
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		6 Months	6 Months	6 Months	6 Months						
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		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
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		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
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		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						
		1L	1L	1L	1L						
		6 Months	6 Months	6 Months	6 Months						
		G/P	G/P	G/P	G/P						
		1	1	1	1						

June 29, 2017



SAMPLE RECEIPT & REVIEW FORM

Client: <u>CPRC</u>		SDG/AR/COC/Work Order: <u>424740</u>		
Received By: <u>Stacy Booni</u>		Date Received: <u>6-JUNE-17</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>7798 0294 4030 -2c</u>		
Suspected Hazard Information	Yes <input type="checkbox"/> No <input type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.		
Shipped as a DOT Hazardous?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____		
COC/Samples marked or classified as radioactive?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u> CPM / mR/Hr Classified as: <u>Rad 1</u> Rad 2 Rad 3		
Is package, COC, and/or Samples marked HAZ?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If yes, select Hazards below, and contact the GEL Safety Group. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other: <u>HA</u>		
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 checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>	
3 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Preservation Method: <u>Wet Ice</u> Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: _____
4 Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>1R3-17</u> Secondary Temperature Device Serial # (If Applicable): _____
5 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input checked="" 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 checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>	If Yes, Are Encores or Soil Kits present? Yes ___ No ___ (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes ___ No ___ N/A (If unknown, select No) <input checked="" type="checkbox"/> VOA vials free of headspace? Yes ___ No ___ N/A Sample ID's and containers affected: _____
8 Samples received within holding time?	<input checked="" type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected: _____
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected: _____
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected: _____
12 Are sample containers identifiable as GEL provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Comments (Use Continuation Form if needed):				

PM (or PMA) review: Initials BL Date 6-7-17 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.	Inorganics	Metals
M	Duplicate precision not met.	Inorganics	Metals
o	Analyte failed to recover within LCS limits (Organics only)	Organics	
S	Reported value determined by the Method of Standard Additions (MSA)	Inorganics	
T	Spike and/or spike duplicate sample recovery is outside control limits.	Organics	
W	Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.	Inorganics	
B	The associated QC sample blank has a result $\geq 2X$ the MDA and, after corrections, result is \geq MDA for this sample	Radiological	
Y	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
+	Correlation coefficient for Method of Standard Additions (MSA) is < 0.995	Inorganics	
B	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	General Chemistry	
C	Target analyte was detected in the sample and the associated blank. The associated blank concentration is \geq EQL or is > 5% of the measured concentration and/or decision level for associated samples.	Inorganics	Metals
C	Target analyte was detected in the sample and the associated blank. The associated blank concentration is \geq EQL or is > 5% of the measured concentration and/or decision level for associated samples.	General Chemistry	
<	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide	General Chemistry	
UX	Gamma Spectroscopy--Uncertain identification	Radiological	

Laboratory Certifications

List of current GEL Certifications as of 29 June 2017

State	Certification
Alaska	UST-0110
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA170010
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122017-1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-17-12
Utah NELAP	SC000122017-22
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Radiological Analysis

Case Narrative

June 29, 2017

Radiochemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL424740
Work Order #: 424740

Product: GAMMA_GS:COMMON + Add-on

Analytical Method: 901.1_GAMMA_GS

Analytical Procedure: GL-RAD-A-013 REV# 27

Analytical Batch: 1673941

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
424740001	B3B899
424740002	B3B8B4
1203811238	Method Blank (MB)
1203811239	424740001(B3B899) Sample Duplicate (DUP)
1203811240	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.

Quality Control (QC) Information

QC Information

All of the QC samples meet the required acceptance limits with the following exceptions: Sample and duplicate, 1203811239 (B3B899DUP) and 424740001 (B3B899), Co60 and Eu152 relative error ratios are greater than 2; however, results are less than their respective MDCs.

Product: SRTOT_SEP_PRECIP_GPC: COMMON

Analytical Method: SRTOT_SEP_PRECIP_GPC

Analytical Procedure: GL-RAD-A-004 REV# 18

Analytical Batch: 1672708

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
424740001	B3B899
424740002	B3B8B4
1203808198	Method Blank (MB)
1203808199	424740002(B3B8B4) Sample Duplicate (DUP)
1203808200	Laboratory Control Sample (LCS)

June 29, 2017

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

Data Summary:

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

Technical Information

Recounts

Sample 1203808198 (MB) was recounted due to a suspected blank false positive. The recount is reported. Samples 1203808199 (B3B8B4DUP), 424740001 (B3B899) and 424740002 (B3B8B4) were recounted to confirm sample results. The second counts are reported.

Product: TC99_EIE_LSC: COMMON

Analytical Method: TC99_EIE_LSC

Analytical Procedure: GL-RAD-A-059 REV# 5

Analytical Batch: 1672312

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
424740001	B3B899
424740002	B3B8B4
1203807038	Method Blank (MB)
1203807039	424740001(B3B899) Sample Duplicate (DUP)
1203807040	Laboratory Control Sample (LCS)

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

Data Summary:

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

Product: TRITIUM_DIST_LSC: COMMON

Analytical Method: TRITIUM_DIST_LSC

Analytical Procedure: GL-RAD-A-002 REV# 22

Analytical Batch: 1674110

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
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June 29, 2017

424740001	B3B899
424740002	B3B8B4
1203811612	Method Blank (MB)
1203811613	424740001(B3B899) Sample Duplicate (DUP)
1203811614	424740001(B3B899) Matrix Spike (MS)
1203811615	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.

Quality Control (QC) Information

QC Information

All of the QC samples meet the required acceptance limits with the following exceptions: The Matrix Spike 1203811614 (B3B899MS) did not meet recovery requirements due to the sample activity being greater than five times the spiked nominal concentration.

Product: C14_LSC: COMMON

Analytical Method: C14_LSC

Analytical Procedure: GL-RAD-A-003 REV# 15

Analytical Batch: 1674669

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
424740001	B3B899
424740002	B3B8B4
1203812819	Method Blank (MB)
1203812820	424740002(B3B8B4) Sample Duplicate (DUP)
1203812821	424740002(B3B8B4) Matrix Spike (MS)
1203812822	Laboratory Control Sample (LCS)

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

Data Summary:

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

Certification Statement

June 29, 2017

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.

June 29, 2017

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: GEL424740 GEL Work Order: 424740

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.

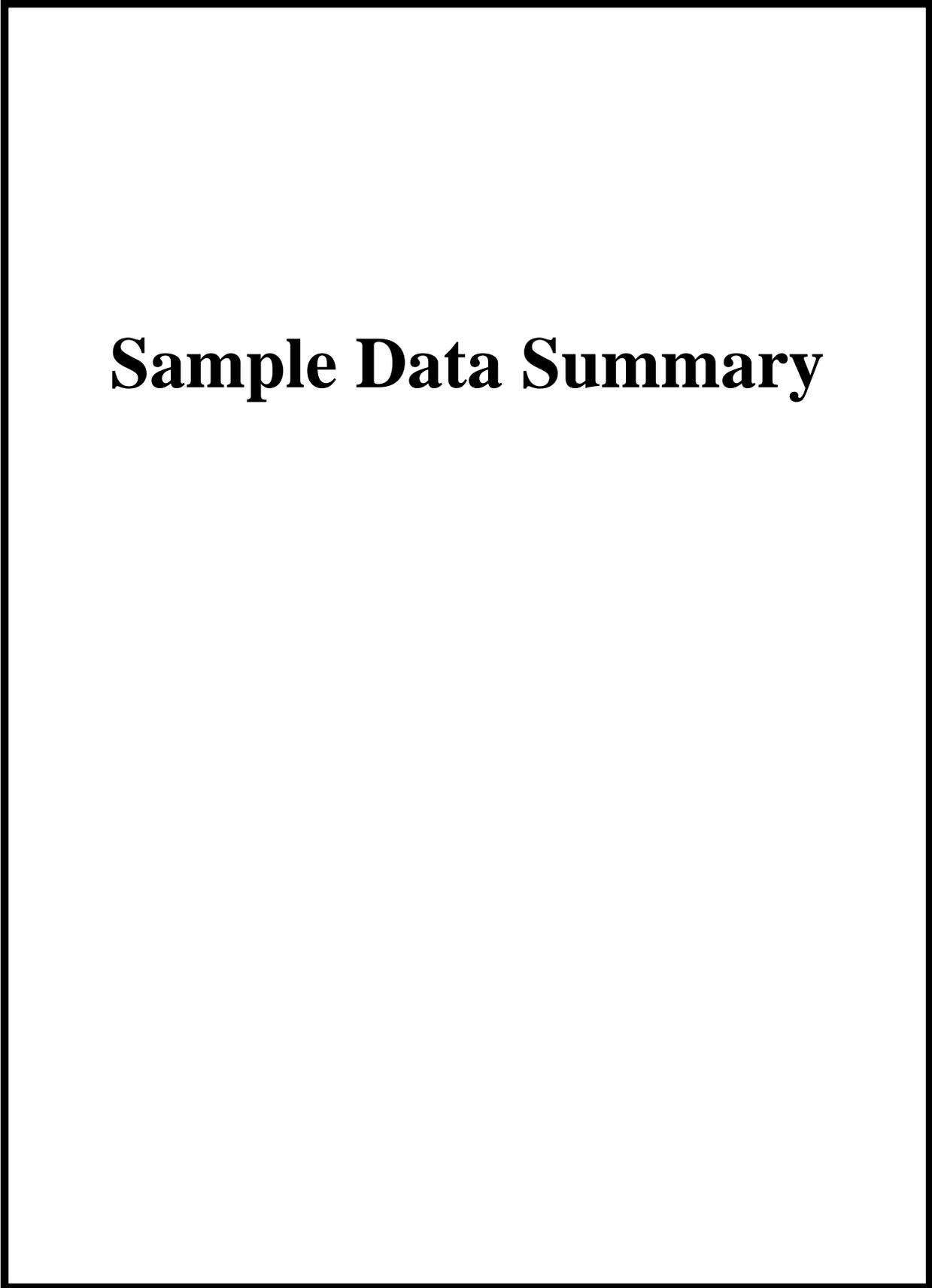
The following data validator verified the information presented in this data report:

Signature: 

Name: Theresa Austin

Date: 29 JUN 2017

Title: Group Leader



Sample Data Summary

June 29, 2017
Rad

**Certificate of Analysis
Sample Summary**

SDG Number: GEL424740	Client: CPRC001	Project: CPRC0FRC1603
Lab Sample ID: 424740001	Date Collected: 06/05/2017 07:50	Matrix: WATER
	Date Received: 06/06/2017 09:05	
Client ID: B3B899	Method: SRTOT_SEP_PRECIP_GPC	Prep Basis: "As Received"
Batch ID: 1672708	Analyst: KSD1	SOP Ref: GL-RAD-A-004
Run Date: 06/27/2017 14:51	Aliquot: 300 mL	Instrument: PIC9C
Data File: S1672708r1.xls	Prep Method: EPA 905.0 Modified/DOE RP5	Count Time: 60 min
Prep Batch: 1672708		
Prep Date: 06/26/2017 09:39		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium		3.25	pCi/L	+/-0.979	1.23	1.16	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.60	7.75	mg	98.1	(40%-110%)

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.

June 29, 2017
RadCertificate of Analysis
Sample SummarySDG Number: GEL424740
Lab Sample ID: 424740001Client: CPRC001
Date Collected: 06/05/2017 07:50
Date Received: 06/06/2017 09:05Project: CPRC0FRC1603
Matrix: WATERClient ID: B3B899
Batch ID: 1673941
Run Date: 06/23/2017 15:33
Data File: G424740001.CNF;1
Prep Batch: 1673941
Prep Date: 06/21/2017 00:00Method: 901.1_GAMMA_GS
Analyst: MXR1
Aliquot: 0.5 L
Prep Method: EPA 901.1Prep Basis: "As Received"
SOP Ref: GL-RAD-A-013
Instrument: GAM02
Count Time: 120 min

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	12.7	pCi/L	+/-30.0	30.5	46.2	
10045-97-3	Cesium-137	U	6.53	pCi/L	+/-8.88	8.88	10.3	15.0
10198-40-0	Cobalt-60	U	4.66	pCi/L	+/-5.42	5.82	12.4	
14683-23-9	Europium-152	U	26.2	pCi/L	+/-15.4	19.5	29.9	
15585-10-1	Europium-154	U	-2.87	pCi/L	+/-17.7	17.7	30.4	
14391-16-3	Europium-155	U	-8.21	pCi/L	+/-19.2	19.5	30.6	

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.

June 29, 2017

**Certificate of Analysis
Sample Summary**

SDG Number: GEL424740	Client: CPRC001	Project: CPRC0FRC1603
Lab Sample ID: 424740001	Date Collected: 06/05/2017 07:50	Matrix: WATER
	Date Received: 06/06/2017 09:05	
Client ID: B3B899	Method: TC99_EIE_LSC	Prep Basis: "As Received"
Batch ID: 1672312	Analyst: CXS7	SOP Ref: GL-RAD-A-059
Run Date: 06/27/2017 05:15	Aliquot: 100 mL	Instrument: LSCBLUE
Data File: E1672312.xls	Prep Method: DOE EML HASL-300, Tc-02-	Count Time: 20 min
Prep Batch: 1672312		
Prep Date: 06/23/2017 09:57		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		96.6	pCi/L	+/-27.1	29.1	41.3	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	4.90E+05	5.44E+05	CPM	90.1	(30%-105%)

Comments:

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

June 29, 2017
Rad

**Certificate of Analysis
Sample Summary**

SDG Number: GEL424740	Client: CPRC001	Project: CPRC0FRC1603
Lab Sample ID: 424740001	Date Collected: 06/05/2017 07:50	Matrix: WATER
	Date Received: 06/06/2017 09:05	
Client ID: B3B899		Prep Basis: "As Received"
Batch ID: 1674110	Method: TRITIUM_DIST_LSC	SOP Ref: GL-RAD-A-002
Run Date: 06/26/2017 19:21	Analyst: KXA1	Instrument: LSCGOLD
Data File: T1674110.xls	Aliquot: 50 mL	Count Time: 45 min
Prep Batch: 1674110	Prep Method: EPA 906.0 Modified	
Prep Date: 06/26/2017 12:39		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		28200	pCi/L	+/-928	5520	382	400

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

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

June 29, 2017

**Certificate of Analysis
Sample Summary**

SDG Number: GEL424740	Client: CPRC001	Project: CPRC0FRC1603
Lab Sample ID: 424740001	Date Collected: 06/05/2017 07:50	Matrix: WATER
	Date Received: 06/06/2017 09:05	
Client ID: B3B899	Method: C14_LSC	Prep Basis: "As Received"
Batch ID: 1674669	Analyst: GXR1	SOP Ref: GL-RAD-A-003
Run Date: 06/26/2017 20:21	Aliquot: 100 mL	Instrument: LSCRED
Data File: C1674669.xls	Prep Method: EPA EERF C-01 Modified	Count Time: 15 min
Prep Batch: 1674669		
Prep Date: 06/26/2017 12:34		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	19.0	pCi/L	+/-17.7	18.1	29.5	50.0

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

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

June 29, 2017
Rad

**Certificate of Analysis
Sample Summary**

SDG Number: GEL424740	Client: CPRC001	Project: CPRC0FRC1603
Lab Sample ID: 424740002	Date Collected: 06/05/2017 07:50	Matrix: WATER
	Date Received: 06/06/2017 09:05	
Client ID: B3B8B4	Method: SRTOT_SEP_PRECIP_GPC	Prep Basis: "As Received"
Batch ID: 1672708	Analyst: KSD1	SOP Ref: GL-RAD-A-004
Run Date: 06/27/2017 14:51	Aliquot: 300 mL	Instrument: PIC10A
Data File: S1672708r1.xls	Prep Method: EPA 905.0 Modified/DOE RP5	Count Time: 60 min
Prep Batch: 1672708		
Prep Date: 06/26/2017 09:39		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium		3.29	pCi/L	+/-1.08	1.32	1.34	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.50	7.75	mg	96.8	(40%-110%)

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.

June 29, 2017
RadCertificate of Analysis
Sample SummarySDG Number: GEL424740
Lab Sample ID: 424740002Client: CPRC001
Date Collected: 06/05/2017 07:50
Date Received: 06/06/2017 09:05Project: CPRC0FRC1603
Matrix: WATERClient ID: B3B8B4
Batch ID: 1673941
Run Date: 06/23/2017 15:34
Data File: G424740002.CNF;1
Prep Batch: 1673941
Prep Date: 06/21/2017 00:00Method: 901.1_GAMMA_GS
Analyst: MXR1
Aliquot: 0.5 L
Prep Method: EPA 901.1Prep Basis: "As Received"
SOP Ref: GL-RAD-A-013
Instrument: GAM03
Count Time: 120 min

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	-5.73	pCi/L	+/-40.0	40.1	64.8	
10045-97-3	Cesium-137	U	5.79	pCi/L	+/-8.15	8.17	8.46	15.0
10198-40-0	Cobalt-60	U	4.66	pCi/L	+/-5.28	5.71	12.4	
14683-23-9	Europium-152	U	7.57	pCi/L	+/-10.9	11.5	22.5	
15585-10-1	Europium-154	U	1.00	pCi/L	+/-15.4	15.4	31.1	
14391-16-3	Europium-155	U	10.3	pCi/L	+/-14.5	15.3	27.3	

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.

June 29, 2017

**Certificate of Analysis
Sample Summary**

SDG Number: GEL424740	Client: CPRC001	Project: CPRC0FRC1603
Lab Sample ID: 424740002	Date Collected: 06/05/2017 07:50	Matrix: WATER
	Date Received: 06/06/2017 09:05	
Client ID: B3B8B4	Method: TC99_EIE_LSC	Prep Basis: "As Received"
Batch ID: 1672312	Analyst: CXS7	SOP Ref: GL-RAD-A-059
Run Date: 06/27/2017 05:37	Aliquot: 100 mL	Instrument: LSCBLUE
Data File: E1672312.xls	Prep Method: DOE EML HASL-300, Tc-02-	Count Time: 20 min
Prep Batch: 1672312		
Prep Date: 06/23/2017 09:57		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		118	pCi/L	+/-29.3	32.1	44.1	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	4.62E+05	5.44E+05	CPM	84.9	(30%-105%)

Comments:

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

June 29, 2017

**Certificate of Analysis
Sample Summary**

SDG Number: GEL424740	Client: CPRC001	Project: CPRC0FRC1603
Lab Sample ID: 424740002	Date Collected: 06/05/2017 07:50	Matrix: WATER
	Date Received: 06/06/2017 09:05	
Client ID: B3B8B4	Method: TRITIUM_DIST_LSC	Prep Basis: "As Received"
Batch ID: 1674110	Analyst: KXA1	SOP Ref: GL-RAD-A-002
Run Date: 06/26/2017 20:07	Aliquot: 50 mL	Instrument: LSCGOLD
Data File: T1674110.xls	Prep Method: EPA 906.0 Modified	Count Time: 45 min
Prep Batch: 1674110		
Prep Date: 06/26/2017 12:39		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		27600	pCi/L	+/-921	5420	383	400

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

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

June 29, 2017

**Certificate of Analysis
Sample Summary**

SDG Number: GEL424740	Client: CPRC001	Project: CPRC0FRC1603
Lab Sample ID: 424740002	Date Collected: 06/05/2017 07:50	Matrix: WATER
	Date Received: 06/06/2017 09:05	
Client ID: B3B8B4	Method: C14_LSC	Prep Basis: "As Received"
Batch ID: 1674669	Analyst: GXR1	SOP Ref: GL-RAD-A-003
Run Date: 06/26/2017 20:37	Aliquot: 100 mL	Instrument: LSCRED
Data File: C1674669.xls	Prep Method: EPA EERF C-01 Modified	Count Time: 15 min
Prep Batch: 1674669		
Prep Date: 06/26/2017 12:34		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	22.6	pCi/L	+/-17.9	18.4	29.5	50.0

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

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

Quality Control Summary

GEL LABORATORIES LLC

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

QC Summary

Report Date: June 29, 2017
Page 1 of 4

Client : CH2MHill Plateau Remediation Company
 MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Workorder: 424740

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gamma Spec									
Batch	1673941								
QC1203811238	MB								
Americium-241			U	3.45	pCi/L			MXR1	06/23/1715:34
				Uncert: +/-21.3					
				TPU: +/-21.4					
Cesium-137			U	-0.10	pCi/L				
				Uncert: +/-4.21					
				TPU: +/-4.21					
Cobalt-60			U	4.36	pCi/L				
				Uncert: +/-5.79					
				TPU: +/-6.12					
Europium-152			U	-8.32	pCi/L				
				Uncert: +/-12.0					
				TPU: +/-12.6					
Europium-154			U	2.62	pCi/L				
				Uncert: +/-12.1					
				TPU: +/-12.1					
Europium-155			U	-4.3	pCi/L				
				Uncert: +/-9.90					
				TPU: +/-10.1					
QC1203811239	424740001	DUP							
Americium-241		U	12.7	U	9.38	pCi/L			06/23/1717:44
			Uncert: +/-30.0		+/-35.2		RPD: 0	N/A	
			TPU: +/-30.5		+/-35.5		RER: 0.139	(0-2)	
Cesium-137		U	6.53	U	3.57	pCi/L			
			Uncert: +/-8.88		+/-4.77		RPD: 0	N/A	
			TPU: +/-8.88		+/-5.04		RER: 0.568	(0-2)	
Cobalt-60		U	4.66	U	-3.68	pCi/L			
			Uncert: +/-5.42		+/-4.20		RPD: 0	N/A	
			TPU: +/-5.82		+/-4.53		RER: 2.22	(0-2)	
Europium-152		U	26.2	U	1.78	pCi/L			
			Uncert: +/-15.4		+/-12.2		RPD: 0	N/A	
			TPU: +/-19.5		+/-12.2		RER: 2.08	(0-2)	
Europium-154		U	-2.87	U	1.73	pCi/L			
			Uncert: +/-17.7		+/-11.3		RPD: 0	N/A	
			TPU: +/-17.7		+/-11.3		RER: 0.429	(0-2)	
Europium-155		U	-8.21	U	4.93	pCi/L			
			Uncert: +/-19.2		+/-14.7		RPD: 0	N/A	
			TPU: +/-19.5		+/-14.9		RER: 1.05	(0-2)	
QC1203811240	LCS								
Americium-241	1.10E+05			1.18E+05	pCi/L	REC: 107	(80%-120%)		06/23/1717:44
				Uncert: +/-3210					
				TPU: +/-13000					
Cesium-137	42000			42800	pCi/L	REC: 102	(80%-120%)		
				Uncert: +/-859					
				TPU: +/-3650					

QC Summary

Workorder: 424740

Page 2 of 4

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gamma Spec									
Batch	1673941								
Cobalt-60	38000			39900	pCi/L	REC: 105	(80%-120%)		
	Uncert:			+/-970					
	TPU:			+/-3890					
Europium-152			U	27.6	pCi/L				
	Uncert:			+/-391					
	TPU:			+/-391					
Europium-154			U	210	pCi/L				
	Uncert:			+/-259					
	TPU:			+/-276					
Europium-155			U	210	pCi/L				
	Uncert:			+/-415					
	TPU:			+/-426					
Rad Gas Flow									
Batch	1672708								
QC1203808198	MB								
Total Strontium			U	-0.667	pCi/L			KSD1	06/27/1714:51
	Uncert:			+/-0.581					
	TPU:			+/-0.581					
**Strontium Carrier	7.75			6.60	mg	REC: 85	(40%-110%)		
QC1203808199	424740002	DUP							
Total Strontium		3.29		3.29	pCi/L				06/27/1714:51
	Uncert:	+/-1.08		+/-0.971		RPD: 0	(0% - 100%)		
	TPU:	+/-1.32		+/-1.23		RER: 0.00273	(0-2)		
**Strontium Carrier	7.75	7.50		8.10	mg	REC: 105	(40%-110%)		
QC1203808200	LCS								
Total Strontium	72.8			77.6	pCi/L	REC: 107	(80%-120%)		06/27/1713:18
	Uncert:			+/-3.99					
	TPU:			+/-18.4					
**Strontium Carrier	7.75			6.80	mg	REC: 88	(40%-110%)		
Rad Liquid Scintillation									
Batch	1672312								
QC1203807038	MB								
Technetium-99			U	-6.36	pCi/L			CXS7	06/27/1705:58
	Uncert:			+/-24.3					
	TPU:			+/-24.3					
**Technetium-99m Tracer	5.44E+05			4.77E+05	CPM	REC: 88	(30%-105%)		
QC1203807039	424740001	DUP							
Technetium-99		96.6		121	pCi/L				06/27/1706:20
	Uncert:	+/-27.1		+/-28.4		RPD: 22	(0% - 100%)		
	TPU:	+/-29.1		+/-31.4		RER: 1.11	(0-2)		
**Technetium-99m Tracer	5.44E+05	4.90E+05		4.87E+05	CPM	REC: 89	(30%-105%)		
QC1203807040	LCS								
Technetium-99	861			828	pCi/L	REC: 96	(80%-120%)		06/27/1706:42
	Uncert:			+/-44.5					
	TPU:			+/-102					
**Technetium-99m Tracer	5.44E+05			4.94E+05	CPM	REC: 91	(30%-105%)		
Batch	1674110								
QC1203811612	MB								
Tritium			U	223	pCi/L			KXA1	06/26/1720:54

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Parname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date	Time
Rad Liquid Scintillation										
Batch	1674110									
				Uncert:						
				TPU:						
QC1203811613	424740001	DUP								
Tritium		28200		28700	pCi/L				06/26/1721:41	
				Uncert:		RPD: 2	(0% - 20%)			
				TPU:		RER: 0.13	(0-2)			
QC1203811614	424740001	MS								
Tritium	2240	28200		29400	pCi/L	REC: N/A			06/26/1722:28	
				Uncert:						
				TPU:						
QC1203811615	LCS									
Tritium	2230			2550	pCi/L	REC: 114	(80%-120%)		06/26/1723:15	
				Uncert:						
				TPU:						
Batch	1674669									
QC1203812819	MB									
Carbon-14			U	-7.19	pCi/L			GXR1	06/26/1720:53	
				Uncert:						
				TPU:						
QC1203812820	424740002	DUP								
Carbon-14		U	22.6	U	9.01	pCi/L			06/26/1721:09	
				Uncert:		RPD: 0	N/A			
				TPU:		RER: 1.06	(0-2)			
QC1203812821	424740002	MS								
Carbon-14	751	U	22.6	718	pCi/L	REC: 96	(75%-125%)		06/26/1721:25	
				Uncert:						
				TPU:						
QC1203812822	LCS									
Carbon-14	751			713	pCi/L	REC: 95	(80%-120%)		06/26/1721:41	
				Uncert:						
				TPU:						

Notes:

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

The Qualifiers in this report are defined as follows:

- B The associated QC sample blank has a result $\geq 2X$ the MDA and, after corrections, result is \geq MDA for this sample
- 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.
- UX Gamma Spectroscopy--Uncertain identification
- 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

QC Summary

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