GEL Laboratories LLC
a member of The GEL Group INC

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2040 Savage Road Charleston, SC 29407
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gel.com

July 19, 2016

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

Re: CHPRC SAF S16-006
Work Order: 400969
SDG: GEL400969

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 04, 2016. 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: 300071 - 7H
Chain of Custody: S16-006-303 and S16-006-304
Enclosures

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Problem and Discrepancy Report

Problem and Discrepancy Report

GEL

SDG GEL398682

07/06/16

The data package has the following issues:

COC # S16-006-303 for sample B35CY3 and COC #S16-006-304 for sample B35CY4 requests I129LL_SEP_LEPS_GS_LL: COMMON and SRISO_SEP_PRECIP_GPC: COMMON. These analytes were not reported in the SDG.

Resolution: *Provide correction.*

Lab Response:

The lab has relogged these samples under new GEL SDG 400969.

Provide a resolution to each issue noted on the report

Case Narrative

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF S16-006
SDG: GEL400969

July 19, 2016

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 04, 2016, 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. Samples under this SDG were a relog. Please refer to the enclosed P&D for further details.

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 and DER.

Sample Identification
The laboratory received the following samples:

Laboratory Identification	Sample Description
400969001	B35CY3
400969002	B35CY4

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.

B. Luthman

Brielle Luthman for
Heather Shaffer
Project Manager

Radiochemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL400969
Work Order #: 400969

I129LL_SEP_LEPS_GS: COMMON (low level)

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 1203580499 (LCS) was recounted due to low recovery. The recount is reported.

SRISO_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 1203580406 (B35BH5DUP) was verified by recounting at least five days from the separation date. The recount is reported.

Certification Statement

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

Chain of Custody and Supporting Documentation

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # S16-006-303
	87 cbs. ~~398682~~ 400969 Relog	Page 1 of 1

Collector	Dan Woshle CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	S16-006	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	SURV, JUNE 2016	Logbook No.	HNF-N-506 861/14	Ice Chest No.	GWS-158
Shipped To (Lab)	GEL Laboratories, LLC	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7764 2959 4310
Protocol	SURV	Priority:	30 Days PRIORITY	Offsite Property No.	66687

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 INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B35CY9	Y	W	6.2.16	0755	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2
B35CY3	N	W			1x500-mL G/P	6010_METALS_ICP: COMMON; 6020_METALS_ICPMS: Uranium (1)	6 Months	HNO3 to pH <2
B35CY3	N	W			4x40-mL aGs*	8260_VOA_GCMS_IX: COMMON	14 Days	HCl or H2SO4 to pH <2/Cool <=6C
B35CY3	N	W			1x1-L G/P	AMCMISO_EIE_PRECIP_AEA: COMMON	180 Days	HNO3 to pH <2
B35CY3	N	W			1x500-mL G/P	C14_LSC: COMMON	6 Months	None
B35CY3	N	W			1x4-L G/P	GAMMA_GS: COMMON; GAMMA_GS: GW 01	6 Months	HNO3 to pH <2
* B35CY3	N	W			2x4-L G/P	I129LL_SEP_LEPS_GS_LL: COMMON *	6 Months	None
B35CY3	N	W			1x1-L G/P	PU241_IE_LSC: COMMON	6 Months	HNO3 to pH <2
B35CY3	N	W			1x1-L G/P	PUISO_PLATE_AEA: COMMON	6 Months	HNO3 to pH <2
B35CY3	N	W			1x1-L G/P	SE79_SEP_IE_LSC: COMMON	6 Months	HNO3 to pH <2
* B35CY3	N	W			3x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON *	6 Months	HNO3 to pH <2
B35CY3	N	W			1x500-mL G/P	TC99_EIE_LSC: COMMON	6 Months	HNO3 to pH <2
B35CY3	N	W			1x500-mL P	TRITIUM_DIST_LSC: COMMON	6 Months	None
B35CY3	N	W	6.2.16	0755	3x1-L G/P	UISO_IE_PRECIP_AEA: COMMON	6 Months	HNO3 to pH <2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Dan Woshle CHPRC			JUN 0 2 2016 6-2-16	FEDEX			~~JUN 0 2 2016~~ 6-2-16
Relinquished By			Date/Time	Received By			Date/Time
Fedex							6/4/16 1030
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

PRINTED ON 4/28/2016 FSR ID = FSR31684 A-6004-842 (REV 2)

7/19/2016

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # S16-006-304
	HS 6/6/16 ~~398682~~ Relog 400969	Page 1 of 1

Collector	Dan Woehle CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	S16-006	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	SURV, JUNE 2016	Logbook No.	HNF-N-506 86124	Ice Chest No.	GWS-491 92lbs
Shipped To (Lab)	GEL Laboratories, LLC	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7764 2959 4505
Protocol	SURV	Priority:	30 Days PRIORITY	Offsite Property No.	66687

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 INSTRUCTIONS Hold Time N/A

Total Activity Exemption: Yes ☑ No ☐

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B35CY4	N	W	6·2·16	0901	1x500-mL G/P	6010_METALS_ICP: COMMON; 6020_METALS_ICPMS: Uranium (1)	6 Months	HNO3 to pH <2
B35CY4	N	W			4x40-mL aGs*	8260_VOA_GCMS_IX: COMMON	14 Days	HCl or H2SO4 to pH <2/Cool <=6C
B35CY4	N	W			1x1-L G/P	AMCMISO_EIE_PRECIP_AEA: COMMON	180 Days	HNO3 to pH <2
B35CY4	N	W			1x500-mL G/P	C14_LSC: COMMON	6 Months	None
B35CY4	N	W			1x4-L G/P	GAMMA_GS: COMMON; GAMMA_GS: GW 01	6 Months	HNO3 to pH <2
* B35CY4	N	W			2x4-L G/P	I129LL_SEP_LEPS_GS_LL: COMMON	6 Months	None
B35CY4	N	W			1x1-L G/P	PU241_IE_LSC: COMMON	6 Months	HNO3 to pH <2
B35CY4	N	W			1x1-L G/P	PUISO_PLATE_AEA: COMMON	6 Months	HNO3 to pH <2
* B35CY4	N	W			1x1-L G/P	SE79_SEP_IE_LSC: COMMON	6 Months	HNO3 to pH <2
B35CY4	N	W			3x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2
B35CY4	N	W			1x500-mL G/P	TC99_EIE_LSC: COMMON	6 Months	HNO3 to pH <2
B35CY4	N	W			1x500-mL P	TRITIUM_DIST_LSC: COMMON	6 Months	None
B35CY4	N	W			3x1-L G/P	UISO_IE_PRECIP_AEA: COMMON	6 Months	HNO3 to pH <2
B35D00	Y	W	6·2·16	0901	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Dan Woehle CHPRC			0930 JUN 0 2 2016	FEDEX			6/2/16 ~~JUN 0 2 2016~~
Relinquished By	Fedex		Date/Time	Received By			Date/Time 6/4/16 10:30
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

PRINTED ON 4/28/2016 FSR ID = FSR32049 A-6004-842 (REV 2)

7/19/2016

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: CPRC	SDG/AR/COC/Work Order: 398082
Received By: H. Taylor	Date Received: 06/04/16

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts):
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample containers < action levels? copy
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: 216120 Secondary Temperature Device Serial # (If Applicable): 5032015880
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?		✓		Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	Do Low Level Perchlorate samples have headspace as required?			✓	Sample ID's and containers affected:
7	VOA vials contain acid preservation?	✓			(If unknown, select No)
8	VOA vials free of headspace (defined as < 6mm bubble)?	✓			Sample ID's and containers affected:
9	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
10	Samples received within holding time?	✓			ID's and tests affected:
11	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
12	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
13	Number of containers received match number indicated on COC?			✓	Sample ID's affected: missing coolers
14	Are sample containers identifiable as GEL provided?	✓			
15	COC form is properly signed in relinquished/received sections?	✓			
16	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other SEE continuation sheet

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials DS Date 6/6/16 Page 1 of 1

GL-CHL-SR-001 Rev 3

GEL Laboratories LLC SAMPLE RECEIPT & REVIEW CONTINUATION FORM

Client: CPRC Received By: H. Taeffe Date Received: 06/04/16 SDG/AR/COC/Work Order: _____

7764	4316	1035	2
7764	4161	8358	2
7764	2959	4310	-6
7764	2959	4505	6
7764	4355	5534	2
7764	4161	7945	-20
7764	4161	8172	-20

PM (or PMA) review: Initials DS Date 6/6/16 Page 1 of 1

Data Review Qualifier Definitions

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 (843) 556−8171

Report Date: 19−JUL−16

Project Specific Qualifier Definitions for GEL Client Code: CPRC

Qualifier	Qualifier Definition	Department	Fraction
U	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.		
J	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated	Organics	
P	Aroclor target analyte with greater than 25% difference between column analyses.	Organics	
C	Analyte has been confirmed by GC/MS analysis	Organics	Pesticide
B	The analyte was detected in both the associated QC blank and in the sample.	Organics	
E	Concentration exceeds the calibration range of the instrument	Organics	
A	The TIC is a suspected aldol−condensation product	Organics	Semi−Volatile
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
N	Spike Sample recovery is outside control limits.		
*	Duplicate analysis not within control limits	Inorganics	
>	Result greater than quantifiable range or greater than upper limit of the analysis range	General Chemistry	
Z	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
B	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	Inorganics	Metals
D	Results are reported from a diluted aliquot of sample.		
E	Reported value is estimated due to interferences. See comment in narrative.	Inorganics	Metals
M	Duplicate precision not met.	Inorganics	Metals
o	Analyte failed to recover within LCS limits (0rganics only)	Organics	
S	Reported value determined by the Method of Standard Additions (MSA)	Inorganics	
T	Spike and/or spike duplicate sample recovery is outside control limits.	Organics	
W	Post−digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.	Inorganics	
B	The associated QC sample blank has a result >= 2X the MDA and, after corrections, result is >= 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 >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	Inorganics	Metals
C	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	General Chemistry	
<	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide	General Chemistry	
UX	Gamma Spectroscopy−−Uncertain identification	Radiological	

Laboratory Certifications

List of current GEL Certifications as of 19 July 2016

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	LA160006
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122016−1
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	T104704235−16−11
Utah NELAP	SC000122016−20
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL400969
Work Order #: 400969

Product: **I129LL_SEP_LEPS_GS: COMMON (low level)**
Analytical Method: DOE EML HASL-300,I-01 Modified
Analytical Procedure: GL-RAD-A-006 REV# 21
Analytical Batch: 1579951

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

GEL Sample ID#	Client Sample Identification
400969001	B35CY3
400969002	B35CY4
1203580496	Method Blank (MB)
1203580497	401272001(NonSDG) Sample Duplicate (DUP)
1203580498	401272001(NonSDG) Matrix Spike (MS)
1203580499	Laboratory Control Sample (LCS)

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

Data Summary:

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

Technical Information

Recounts
Sample 1203580499 (LCS) was recounted due to low recovery. The recount is reported.

Product: **SRISO_SEP_PRECIP_GPC: COMMON**
Analytical Method: SRISO_SEP_PRECIP_GPC
Analytical Procedure: GL-RAD-A-004 REV# 17
Analytical Batch: 1579902

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

GEL Sample ID#	Client Sample Identification
400969001	B35CY3
400969002	B35CY4
1203580405	Method Blank (MB)
1203580406	400517005(B35BH5) Sample Duplicate (DUP)
1203580407	Laboratory Control Sample (LCS)

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

Data Summary:

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

Technical Information

Recounts
Sample 1203580406 (B35BH5DUP) was verified by recounting at least five days from the separation date. The recount is reported.

Certification Statement

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

GEL LABORATORIES LLC

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

Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL400969 GEL Work Order: 400969

The Qualifiers in this report are defined as follows:

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

Review/Validation

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

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

Signature: Heather M. McCarty **Name: Heather McCarty**

Date: 19 JUL 2016 **Title: Analyst II**

Sample Data Summary

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL400969**	**Client:**	**CPRC001**	**Project:**	**CPRC0S16006**
Lab Sample ID:	**400969001**	**Date Collected:**	**06/02/2016 07:55**	**Matrix:**	**WATER**
Client Sample:	**-Relog from 398682002**	**Date Received:**	**06/04/2016 10:30**		
Client ID:	**B35CY3**			**Prep Basis:**	**"As Received"**
Batch ID:	**1579902**	**Method:**	**SRISO_SEP_PRECIP_GPC**	**SOP Ref:**	**GL-RAD-A-004**
Run Date:	**07/12/2016 13:01**	**Analyst:**	**KSD1**	**Instrument:**	**PIC10A**
Data File:	**S1579902r2.xls**	**Aliquot:**	**300 mL**	**Count Time:**	**60 min**
Prep Batch:	**1579902**	**Prep Method:**	**EPA 905.0 Modified/DOE RP5**		
Prep Date:	**07/11/2016 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90	U	-0.989	pCi/L	+/-0.657	0.657	1.76	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	5.00	7.37	mg	67.9	(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.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL400969**	**Client:**	**CPRC001**	**Project:**	**CPRC0S16006**
Lab Sample ID:	**400969001**	**Date Collected:**	**06/02/2016 07:55**	**Matrix:**	**WATER**
Client Sample:	**-Relog from 398682002**	**Date Received:**	**06/04/2016 10:30**		
Client ID:	**B35CY3**			**Prep Basis:**	**"As Received"**
Batch ID:	**1579951**	**Method:**	**DOE EML HASL-300,I-01 Mo**	**SOP Ref:**	**GL-RAD-A-006**
Run Date:	**07/18/2016 07:17**	**Analyst:**	**MJH1**	**Instrument:**	**XRAY1**
Data File:	**I400969001.CNF;1**	**Aliquot:**	**1.5 L**	**Count Time:**	**60 min**
Prep Batch:	**1579951**	**Prep Method:**	**DOE EML HASL-300,I-01 M**		
Prep Date:	**07/15/2016 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.30	pCi/L	+/-0.431	0.453	0.748	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL400969**	**Client:**	**CPRC001**	**Project:**	**CPRC0S16006**
Lab Sample ID:	**400969002**	**Date Collected:**	**06/02/2016 09:01**	**Matrix:**	**WATER**
Client Sample:	**-Relog from 398682003**	**Date Received:**	**06/04/2016 10:30**		
Client ID:	**B35CY4**			**Prep Basis:**	**"As Received"**
Batch ID:	**1579902**	**Method:**	**SRISO_SEP_PRECIP_GPC**	**SOP Ref:**	**GL-RAD-A-004**
Run Date:	**07/12/2016 13:01**	**Analyst:**	**KSD1**	**Instrument:**	**PIC9B**
Data File:	**S1579902r2.xls**	**Aliquot:**	**300 mL**	**Count Time:**	**60 min**
Prep Batch:	**1579902**	**Prep Method:**	**EPA 905.0 Modified/DOE RP5**		
Prep Date:	**07/11/2016 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90	U	-0.039	pCi/L	+/-0.694	0.694	1.38	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	6.00	7.37	mg	81.5	(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.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL400969**	**Client:**	**CPRC001**	**Project:**	**CPRC0S16006**
Lab Sample ID:	**400969002**	**Date Collected:**	**06/02/2016 09:01**	**Matrix:**	**WATER**
Client Sample:	**-Relog from 398682003**	**Date Received:**	**06/04/2016 10:30**		
Client ID:	**B35CY4**			**Prep Basis:**	**"As Received"**
Batch ID:	**1579951**	**Method:**	**DOE EML HASL-300,I-01 Mo**	**SOP Ref:**	**GL-RAD-A-006**
Run Date:	**07/18/2016 07:17**	**Analyst:**	**MJH1**	**Instrument:**	**XRAY4**
Data File:	**I400969002.CNF;1**	**Aliquot:**	**1.5 L**	**Count Time:**	**60 min**
Prep Batch:	**1579951**	**Prep Method:**	**DOE EML HASL-300,I-01 M**		
Prep Date:	**07/15/2016 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	0.909	pCi/L	+/-0.728	0.734	0.912	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

Quality Control Summary

GEL LABORATORIES LLC

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

QC Summary

Report Date: July 19, 2016
Page 1 of 2

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **400969**

Parmname	NOM		Sample	Qual	QC	Units	QC Criteria		Range	Analyst	Date Time
Rad Gamma Spec											
Batch 1579951											
QC1203580496 MB											
Iodine-129				U	-0.256	pCi/L				MJH1	07/18/1607:53
Uncert:					+/-0.539						
TPU:					+/-0.552						
QC1203580497 401272001 DUP											
Iodine-129		U	0.251	U	-0.132	pCi/L					07/18/1608:29
Uncert:			+/-0.301		+/-0.407		RPD:	0	N/A		
TPU:			+/-0.322		+/-0.411		RER:	1.44	(0-2)		
QC1203580498 401272001 MS											
Iodine-129	27.7	U	0.251		26.5	pCi/L	REC:	96	(75%-125%)		07/18/1608:55
Uncert:			+/-0.301		+/-2.75						
TPU:			+/-0.322		+/-3.79						
QC1203580499 LCS											
Iodine-129	27.7				25.0	pCi/L	REC:	90	(80%-120%)		07/18/1613:12
Uncert:					+/-2.52						
TPU:					+/-3.52						
Rad Gas Flow											
Batch 1579902											
QC1203580405 MB											
Strontium-90				U	-1.82	pCi/L				KSD1	07/12/1613:05
Uncert:					+/-0.756						
TPU:					+/-0.756						
**Strontium Carrier	7.37				6.50	mg	REC:	88	(40%-110%)		
QC1203580406 400517005 DUP											
Strontium-90			6.92		6.32	pCi/L					07/18/1611:13
Uncert:			+/-1.11		+/-0.984		RPD:	9	(0% - 20%)		
TPU:			+/-1.57		+/-1.40		RER:	0.551	(0-2)		
**Strontium Carrier	7.37		6.50		6.60	mg	REC:	90	(40%-110%)		
QC1203580407 LCS											
Strontium-90	72.9				77.9	pCi/L	REC:	107	(80%-120%)		07/12/1613:05
Uncert:					+/-4.43						
TPU:					+/-13.5						
**Strontium Carrier	7.37				6.60	mg	REC:	90	(40%-110%)		

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 >= 2X the MDA and, after corrections, result is >= 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

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QC Summary

Workorder: **400969**

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

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.
** Indicates analyte is a surrogate compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

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