May 1, 2015

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178

www.gel.com

April 30, 2015

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

Re: CHPRC SAF F11-031
Work Order: 371244
SDG: GEL371244

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on April 17, 2015. 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,

Heather Shaffer

Heather Shaffer
Project Manager

Purchase Order: 302853JPRC - 9C
Chain of Custody: F11-031-080
Enclosures

May 1, 2015

Table of Contents

Case Narrative

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF F11-031
SDG: GEL371244

April 30, 2015

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 April 17, 2015, for analysis. The sample was 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 and DER

Sample Identification
The laboratory received the following sample:

Laboratory Identification	Sample Description
371244001	B312K3

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.

This package, to the best of my knowledge, 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 Manger (or designee) and the laboratory's client services representative as verified by their signatures on this report.

May 1, 2015

Heather Shaffer
Project Manager

Chain of Custody and Supporting Documentation

401(k)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F11-031-080	PAGE 1 OF 1
COLLECTOR J.C. Fulton CHPRC	**COMPANY CONTACT** EVANS, RT	**TELEPHONE NO.** 373-7924	**PROJECT COORDINATOR** EVANS, RT	**PRICE CODE** 9C	**DATA TURNAROUND**
SAMPLING LOCATION PW1-COMPOSITE	**PROJECT DESIGNATION** 200-PW-1 & 200-ZP-1 Spent GAC Canisters and Filters		**SAF NO.** F11-031	**AIR QUALITY** ☐	15 Days / 15 Days
ICE CHEST NO. GWS-150	**FIELD LOGBOOK NO.** HNF-N-507-31	**ACTUAL SAMPLE DEPTH** N/A	**COA** 302853JPRC	**METHOD OF SHIPMENT** FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 5573		**BILL OF LADING/AIR BILL NO.** 773389712618		

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

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

SPECIAL HANDLING AND/OR STORAGE
Rad Trk Box NMO

PRESERVATION			None	None	None	None	
HOLDING TIME			6 Months	6 Months	6 Months	6 Months	
TYPE OF CONTAINER			G/P	G/P	G/P	G/P	
NO. OF CONTAINER(S)			1	1	1	1	
VOLUME			60mL	60mL	60mL	500mL	
SAMPLE ANALYSIS			SEE ITEM (1) IN SPECIAL INSTRUCTIONS	THISO_IE_PLATE_AEA: COMMON (Thorium-232);	SE79_SEP_IE_LSC: COMMON;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	
SAMPLE NO.	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**				
B312K3	OTHER SOLID	4-16-15	0830	✓	✓	✓	✓

371244

May 1, 2015

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: CHPRC — DATE/TIME: 4-16-15 0915	RECEIVED BY/STORED IN: SSU-1 — DATE/TIME: 4-16-15 0915	TRVL-15-062 ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. COMPOSITE OF115642, 115648, AND 121364. (1) TC99_SEP_GPC: COMMON; I129_SEP_LEPS_GS: COMMON; TRITIUM_DIST_LSC: COMMON; C14_LSC: COMMON; NI63_LSC: COMMON; (2) GAMMA_GS: COMMON; GAMMA_GS: COMMON (Add-on) {Protactinium-231}; ALPHA_GPC: COMMON; BETA_GPC: COMMON; PUISO_PLATE_AEA: COMMON; AMCMISO_EIE_PLATE_AEA: COMMON {Americium-241}; NP237_LLE_PLATE_AEA: COMMON; UISO_PLATE_AEA: COMMON; SRTOT_SEP_PRECIP_GPC: COMMON;
RELINQUISHED BY/REMOVED FROM: SSU-1 — DATE/TIME: APR 16 2015 1230	RECEIVED BY/STORED IN: M.A. White/CHPRC — DATE/TIME: APR 16 2015 1230	
RELINQUISHED BY/REMOVED FROM: M.A. White/CHPRC — DATE/TIME: APR 16 2015 1400	RECEIVED BY/STORED IN: FEDEX — DATE/TIME:	
RELINQUISHED BY/REMOVED FROM: — DATE/TIME:	RECEIVED BY/STORED IN: — DATE/TIME: 4-17-15 0855	
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:	

TRVL-15-062

LABORATORY SECTION	**RECEIVED BY**		**TITLE**	**DATE/TIME**
FINAL SAMPLE DISPOSITION	**DISPOSAL METHOD**		**DISPOSED BY**	**DATE/TIME**

GEL Laboratories LLC

May 1, 2015

SAMPLE RECEIPT & REVIEW FORM

Client: CPRG	**SDG/AR/COC/Work Order:** 371244
Received By: MK	**Date Received:** 4-17-15

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): Cpm 0
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample containers < action levels?
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) 2c *all temperatures are recorded in Celsius
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR-532776 Secondary Temperature Device Serial # (If Applicable):
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 (EPA 6850) have headspace as required?		✓		Sample ID's and containers affected:
7	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
8	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
9	Samples received within holding time?	✓			ID's and tests affected:
10	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
11	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
12	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
13	Are sample containers identifiable as GEL provided?			✓	
14	COC form is properly signed in relinquished/received sections?	✓			
15	Carrier and tracking number.	✓			Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 7733 8971 2618 2c 7733 8971 2662 2c

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials HS Date 4/17/15 Page 1 of 1 GL-CHL-SR-001 Rev 1

Data Review Qualifier Definitions

GEL LABORATORIES LLC

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

Report Date: 30−APR−15

Project Specific Qualifier Definitions for GEL Client Code: CPRC

Code	Status	Qualifier Definition	CofA	Department	Fraction	Additional Comments
U	Programmed	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.	Y			Includes MDA, TPU, count uncert.
J	Programmed	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	Y	Organics		Organics only
P	Programmed	Aroclor target analyte with greater than 25% difference between column analyses.	Y	Organics		PCB only
C	Manual	Analyte has been confirmed by GC/MS analysis	Y	Organics	Pesticide	IF GC/MS confirmation was attempted but unsuccessful do not qualify with C
B	Programmed	The analyte was detected in both the associated QC blank and in the sample.	Y	Organics		
E	Manual	Concentration exceeds the calibration range of the instrument	Y	Organics		Qualifier Uploaded
A	Manual	The TIC is a suspected aldol−condensation product	Y	Organics	Semi−Volatile	Uploaded with TIC
X	Programmed	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			Replaces H Hold Date In RAD replaces UI. Same usage as standard X as well.
N	Programmed	Spike Sample recovery is outside control limits.	Y			
*	Programmed	Duplicate analysis not within control limits	Y	Inorganics		
>	Programmed	Result greater than quantifiable range or greater than upper limit of the analysis range	Y	General Chemistry		
Z	Manual	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			
B	Programmed	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).	Y	Inorganics	Metals	Replaces J Estimated Value
D	Programmed	Results are reported from a diluted aliquot of sample.	Y			Dilution
E	Programmed	Reported value is estimated due to interferences. See comment in narrative.	Y	Inorganics	Metals	GEL E
M	Manual	Duplicate precision not met.	Y	Inorganics	Metals	Replaces *
o	Programmed	Analyte failed to recover within LCS limits (0rganics only)	Y	Organics		
S	Manual	Reported value determined by the Method of Standard Additions (MSA)	Y	Inorganics		Not coded B/C Rarely preformed
T	Programmed	Spike and/or spike duplicate sample recovery is outside control limits.	Y	Organics		GC/MS only
W	Manual	Post−digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.	Y	Inorganics		No GFAA in house.
B	Programmed	The associated QC sample blank has a result >= 2X the MDA and, after corrections, result is >= MDA for this sample	Y	Radiological		
Y	Manual	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			
+	Manual	Correlation coefficient for Method of Standard Additions (MSA) is < 0.995	Y	Inorganics		
B	Programmed	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).	Y	General Chemistry		Replaces J Estimated Value
C	Programmed	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.	Y	Inorganics	Metals	Replaces B Blank Detection
C	Programmed	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.	Y	General Chemistry		Replaces B Blank Detection
<	Programmed	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide	Y	General Chemistry		for Reactive CN/S

GEL LABORATORIES LLC

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

Report Date: 30−APR−15

Project Specific Qualifier Definitions for GEL Client Code: CPRC

Code	Status	Qualifier Definition	CofA	Department	Fraction	Additional Comments
UX	Manual	Gamma Spectroscopy−−Uncertain identification	Y	Radiological		

Laboratory Certifications

List of current GEL Certifications as of 30 April 2015

State	Certification
Alaska	UST−110
Arkansas	88−0651
CLIA	42D0904046
California	2940 Interim
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC000122013−10
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC000122013−10
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	LA150001
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC000122013−10
Nebraska	NE−OS−26−13
Nevada	SC000122014−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−15−10
Utah NELAP	SC000122015−17
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Radiological Analysis

Radiochemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL371244
Work Order #: 371244

Method/Analysis Information

Product:	**AMCMISO_EIE_PLATE_AEA:COMMON**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1472490
Prep Batch Number:	1472170

Sample ID	Client ID
371244001	B312K3
1203302562	Method Blank (MB)
1203302564	Laboratory Control Sample (LCS)
1203302563	371244001(B312K3) Sample Duplicate (DUP)

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 25.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 371244001 (B312K3).

QC Information
All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Recounts
None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Sample-Specific MDA/MDC
The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**PUISO_PLATE_AEA: COMMON**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1472491
Prep Batch Number:	1472170

Sample ID	Client ID
371244001	B312K3
1203302565	Method Blank (MB)
1203302567	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 25.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 371244001 (B312K3).

QC Information
All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Recounts
Sample 1203302567 (LCS) was recounted due to high recovery. The recount is reported. Sample 371244001 (B312K3) was recounted twice due to high MDC. The third count is reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Sample-Specific MDA/MDC

The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**UISO_PLATE_AEA: COMMON**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1472492
Prep Batch Number:	1472170

Sample ID	Client ID
371244001	B312K3
1203302568	Method Blank (MB)
1203302570	Laboratory Control Sample (LCS)
1203302569	371244001(B312K3) Sample Duplicate (DUP)

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 25.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 371244001 (B312K3).

QC Information
All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Recounts
None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Sample-Specific MDA/MDC
The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**THISO_IE_PLATE_AEA: COMMON (TH232)**
Analytical Method:	DOE EML HASL-300, Th-01-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1473293
Prep Batch Number:	1472170

Sample ID	Client ID

371244001	B312K3
1203304706	Method Blank (MB)
1203304708	Laboratory Control Sample (LCS)
1203304707	371244001(B312K3) Sample Duplicate (DUP)

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-038 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 371244001 (B312K3).

QC Information
All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Samples were reprepped due to low carrier/tracer yield. The re-analysis is being reported.

Recounts
None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Sample-Specific MDA/MDC
The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**NP237_LLE_PLATE_AEA: COMMON**
Analytical Method:	ASTM C 1476-00 Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1473375
Prep Batch Number:	1472170

Sample ID	Client ID
371244001	B312K3
1203304928	Method Blank (MB)
1203304930	Laboratory Control Sample (LCS)
1203304929	371244001(B312K3) Sample Duplicate (DUP)

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-032 REV# 19.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 371244001 (B312K3).

QC Information
All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Samples were reprepped due to low carrier/tracer yield. The re-analysis is being reported.

Recounts
None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Sample-Specific MDA/MDC
The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GAMMA_GS: COMMON + ADD ON (Pa231)**
Analytical Method:	DOE HASL 300, 4.5.2.3/Ga-01-R
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1472300
Prep Batch Number:	1472170

Sample ID	Client ID
371244001	B312K3
1203302031	Method Blank (MB)
1203302033	Laboratory Control Sample (LCS)
1203302032	371247001(B31331) Sample Duplicate (DUP)

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 25.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 371247001 (B31331).

QC Information
All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Recounts
None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC
The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Qualifier	Reason	Analyte	Sample	Client Sample
X	Data rejected due to no valid peak.	Europium-155	1203302032	B31331(371247001DUP)
		Protactinium-231	1203302032	B31331(371247001DUP)

Method/Analysis Information

Product:	**I129_SEP_LEPS_GS: COMMON**
Analytical Method:	DOE EML HASL-300,I-01 Modified
Analytical Batch Number:	1472805

Sample ID	Client ID
371244001	B312K3
1203303484	Method Blank (MB)
1203303487	Laboratory Control Sample (LCS)
1203303485	371244001(B312K3) Sample Duplicate (DUP)
1203303486	371244001(B312K3) Matrix Spike (MS)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-006 REV# 21.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 371244001 (B312K3).

QC Information
All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Recounts
None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC
The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**SRTOT_SEP_PRECEIP_GPC: COMMON**
Analytical Method:	EPA 905.0 Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1472580
Prep Batch Number:	1472170

Sample ID	Client ID
371244001	B312K3
1203302755	Method Blank (MB)
1203302757	Laboratory Control Sample (LCS)
1203302756	371247001(B31331) Sample Duplicate (DUP)

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 17.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 371247001 (B31331).

QC Information
All of the QC samples meet the required acceptance limits with the following exceptions: The sample and the duplicate, 1203302756 (Non SDG 371247001DUP), have a relative error ratio greater than 2 but there is no activity being reported in either sample.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Recounts
Sample 1203302755 (MB) was recounted due to a suspected blank false positive. The recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC
The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**ALPHABETA_GPC: COMMON**
Analytical Method:	EPA 900.0/SW846 9310/SM 7110B Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1472604
Prep Batch Number:	1472170

Sample ID	Client ID
371244001	B312K3
1203302859	Method Blank (MB)
1203302863	Laboratory Control Sample (LCS)
1203302860	371247001(B31331) Sample Duplicate (DUP)
1203302861	371247001(B31331) Matrix Spike (MS)
1203302862	371247001(B31331) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001B REV# 17.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha crosstalk.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 371247001 (B31331).

QC Information
All of the QC samples meet the required acceptance limits with the following exceptions: The sample and the duplicate, 1203302860 (Non SDG 371247001DUP), did not meet the alpha relative percent difference requirement; however, they do meet the relative error ratio requirement with a value of 1.73.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

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 1203302860 (Non SDG 371247001DUP) was recounted due to high relative percent difference/relative error ratio. The recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC
The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**NI63_LSC: COMMON**
Analytical Method:	DOE RESL Ni-1, Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1472403
Prep Batch Number:	1472170

Sample ID	Client ID
371244001	B312K3
1203302283	Method Blank (MB)
1203302285	Laboratory Control Sample (LCS)
1203302284	371244001(B312K3) Sample Duplicate (DUP)

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-022 REV# 17.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 371244001 (B312K3).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Recounts
None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC
The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**SE79_SEP_IE_LSC: COMMON**
Analytical Method:	NERC ORD
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1472405
Prep Batch Number:	1472170

Sample ID	Client ID
371244001	B312K3
1203302286	Method Blank (MB)
1203302288	Laboratory Control Sample (LCS)
1203302287	371244001(B312K3) Sample Duplicate (DUP)

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-031 REV# 11.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
The standard used expired before analysis. The standard for this analysis is used as a reference only; therefore, expiration date does not impact data. 1203302288 (LCS).

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 371244001 (B312K3).

QC Information
All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Recounts
None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC
The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**TC99_SEP_GPC: COMMON**
Analytical Method:	DOE EML HASL-300, Tc-02-RC Modified
Analytical Batch Number:	1472416

Sample ID	Client ID
371244001	B312K3
1203302322	Method Blank (MB)
1203302324	Laboratory Control Sample (LCS)
1203302323	371247001(B31331) Sample Duplicate (DUP)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-059 REV# 3.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 371247001 (B31331).

QC Information
All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Recounts
None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC
The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**TRITIUM_DIST_ LSC: COMMON**
Analytical Method:	EPA 906.0 Modified
Analytical Batch Number:	1472422

Sample ID	Client ID
371244001	B312K3
1203302346	Method Blank (MB)
1203302349	Laboratory Control Sample (LCS)
1203302347	371244001(B312K3) Sample Duplicate (DUP)
1203302348	371244001(B312K3) Matrix Spike (MS)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-002 REV# 21.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 371244001 (B312K3).

QC Information
All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Recounts
Samples were recounted due to low recovery. The recounts are reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC
The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**C14_LSC: COMMON**
Analytical Method:	EPA EERF C-01 Modified
Analytical Batch Number:	1472436

Sample ID	Client ID
371244001	B312K3
1203302390	Method Blank (MB)
1203302393	Laboratory Control Sample (LCS)
1203302391	371244001(B312K3) Sample Duplicate (DUP)
1203302392	371244001(B312K3) Matrix Spike (MS)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-003 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 371244001 (B312K3).

QC Information
All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Recounts
None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC
The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

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: GEL371244 GEL Work Order: 371244

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.

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: Kate Gellatly**

Date: 01 MAY 2015 **Title: Analyst I**

Sample Data Summary

Rad

Certificate of Analysis
Sample Summary

SDG Number:	**GEL371244**	**Client:**	**CPRC001**	**Project:**	**CPRC0F11031**
Lab Sample ID:	**371244001**	**Date Collected:**	**04/16/2015 08:30**	**Matrix:**	**OTHER SOLID**
		Date Received:	**04/17/2015 08:55**	**%Moisture:**	**10**
Client ID:	**B312K3**			**Prep Basis:**	**As Received**
Batch ID:	**1472490**	**Method:**	**DOE EML HASL-300, Am-05-**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**04/22/2015 09:20**	**Analyst:**	**MXS2**	**Instrument:**	**1065**
Data File:	**S0371244001_AM.1B.gcnf**	**Aliquot:**	**0.11 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1472490**	**Prep Method:**	**DOE EML HASL-300, Am-05**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**04/20/2015 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.115	pCi/g	+/-0.263	0.264	0.418	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	15.8	19.4	pCi/g	81.4	(15%-125%)

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).

Rad

Certificate of Analysis
Sample Summary

SDG Number:	**GEL371244**	**Client:**	**CPRC001**	**Project:**	**CPRC0F11031**
Lab Sample ID:	**371244001**	**Date Collected:**	**04/16/2015 08:30**	**Matrix:**	**OTHER SOLID**
		Date Received:	**04/17/2015 08:55**	**%Moisture:**	**10**
Client ID:	**B312K3**			**Prep Basis:**	**As Received**
Batch ID:	**1472491**	**Method:**	**DOE EML HASL-300, Pu-11-**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**04/23/2015 15:07**	**Analyst:**	**MXS2**	**Instrument:**	**1109**
Data File:	**S0371244001_PU.2B.gcnf**	**Aliquot:**	**0.1 g**	**Count Time:**	**999.9998 min**
Prep Batch:	**1472491**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**04/20/2015 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.125	pCi/g	+/-0.347	0.347	0.599	1.00
OER-100-70	Plutonium-239/240	U	0.125	pCi/g	+/-0.347	0.347	0.599	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	3.84	19.7	pCi/g	19.5	(15%-125%)

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).

Rad

Certificate of Analysis
Sample Summary

SDG Number:	**GEL371244**	**Client:**	**CPRC001**	**Project:**	**CPRC0F11031**
Lab Sample ID:	**371244001**	**Date Collected:**	**04/16/2015 08:30**	**Matrix:**	**OTHER SOLID**
		Date Received:	**04/17/2015 08:55**	**%Moisture:**	**10**
Client ID:	**B312K3**			**Prep Basis:**	**As Received**
Batch ID:	**1472492**	**Method:**	**DOE EML HASL-300, U-02-R**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**04/22/2015 09:20**	**Analyst:**	**MXS2**	**Instrument:**	**1008**
Data File:	**S0371244001_UU.1B.gcnf**	**Aliquot:**	**0.1 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1472492**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**04/20/2015 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/139*	Uranium-233/234	U	-0.0851	pCi/g	+/-0.197	0.198	0.584	1.00
15117-96-1/13982	Uranium-235/236	U	-0.0789	pCi/g	+/-0.238	0.239	0.669	1.00
7440-61-1	Uranium-238	U	-0.0213	pCi/g	+/-0.183	0.184	0.425	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	13.7	21.3	pCi/g	64.5	(15%-125%)

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).

Rad

Certificate of Analysis
Sample Summary

SDG Number:	**GEL371244**	**Client:**	**CPRC001**	**Project:**	**CPRC0F11031**
Lab Sample ID:	**371244001**	**Date Collected:**	**04/16/2015 08:30**	**Matrix:**	**OTHER SOLID**
		Date Received:	**04/17/2015 08:55**	**%Moisture:**	**10**
Client ID:	**B312K3**			**Prep Basis:**	**As Received**
Batch ID:	**1473293**	**Method:**	**DOE EML HASL-300, Th-01-**	**SOP Ref:**	**GL-RAD-A-038**
Run Date:	**04/27/2015 09:37**	**Analyst:**	**MXS2**	**Instrument:**	**1044**
Data File:	**S0371244001_TH.2A.gcnf**	**Aliquot:**	**0.053 g**	**Count Time:**	**999.9998 min**
Prep Batch:	**1473293**	**Prep Method:**	**DOE EML HASL-300, Th-01-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**04/23/2015 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
7440-29-1	Thorium-232	U	0.113	pCi/g	+/-0.250	0.251	0.435	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Thorium-229 Tracer	28.6	37.5	pCi/g	76.1	(15%-125%)

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).

Rad

Certificate of Analysis
Sample Summary

SDG Number:	**GEL371244**	**Client:**	**CPRC001**	**Project:**	**CPRC0F11031**
Lab Sample ID:	**371244001**	**Date Collected:**	**04/16/2015 08:30**	**Matrix:**	**OTHER SOLID**
		Date Received:	**04/17/2015 08:55**	**%Moisture:**	**10**
Client ID:	**B312K3**			**Prep Basis:**	**As Received**
Batch ID:	**1473375**	**Method:**	**ASTM C 1476-00 Modified**	**SOP Ref:**	**GL-RAD-A-032**
Run Date:	**04/25/2015 11:25**	**Analyst:**	**MXS2**	**Instrument:**	**1083**
Data File:	**S0371244001_NP.2A.gcnf**	**Aliquot:**	**0.124 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1473375**	**Prep Method:**	**ASTM C 1476-00 Modified**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**04/23/2015 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13994-20-2	Neptunium-237	U	-0.0283	pCi/g	+/-0.166	0.167	0.396	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	1490	1580	pCi/g	94.7	(15%-125%)

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).

Rad

Certificate of Analysis
Sample Summary

SDG Number:	**GEL371244**	**Client:**	**CPRC001**	**Project:**	**CPRC0F11031**
Lab Sample ID:	**371244001**	**Date Collected:**	**04/16/2015 08:30**	**Matrix:**	**OTHER SOLID**
		Date Received:	**04/17/2015 08:55**	**%Moisture:**	**10**
Client ID:	**B312K3**			**Prep Basis:**	**As Received**
Batch ID:	**1472580**	**Method:**	**EPA 905.0 Modified**	**SOP Ref:**	**GL-RAD-A-004**
Run Date:	**04/26/2015 11:15**	**Analyst:**	**KSD1**	**Instrument:**	**PIC2A**
Data File:	**S1472580r1.xls**	**Aliquot:**	**0.504 g**	**Count Time:**	**60 min**
Prep Batch:	**1472580**	**Prep Method:**	**EPA 905.0 Modified**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**04/23/2015 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90	U	-0.0872	pCi/g	+/-0.326	0.326	0.665	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	6.70	8.10	mg	82.7	(25%-125%)

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).

Rad

Certificate of Analysis
Sample Summary

SDG Number:	**GEL371244**	**Client:**	**CPRC001**	**Project:**	**CPRC0F11031**
Lab Sample ID:	**371244001**	**Date Collected:**	**04/16/2015 08:30**	**Matrix:**	**OTHER SOLID**
		Date Received:	**04/17/2015 08:55**	**%Moisture:**	**10**
Client ID:	**B312K3**			**Prep Basis:**	**As Received**
Batch ID:	**1472604**	**Method:**	**EPA 900.0/SW846 9310/SM 711**	**SOP Ref:**	**GL-RAD-A-001B**
Run Date:	**04/23/2015 19:13**	**Analyst:**	**KXB2**	**Instrument:**	**PIC1A**
Data File:	**AB1472604r.xls**	**Aliquot:**	**0.098 g**	**Count Time:**	**500 min**
Prep Batch:	**1472604**	**Prep Method:**	**EPA 900.0/SW846 9310/SM 71**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**04/21/2015 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
12587-46-1	Alpha *ALPHA*	U	-1.17	pCi/g	+/-1.02	1.02	2.01	4.00
12587-47-2	Beta *BETA*		8.86	pCi/g	+/-1.31	1.72	1.74	10.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

Rad

Certificate of Analysis
Sample Summary

SDG Number:	**GEL371244**	**Client:**	**CPRC001**	**Project:**	**CPRC0F11031**
Lab Sample ID:	**371244001**	**Date Collected:**	**04/16/2015 08:30**	**Matrix:**	**OTHER SOLID**
		Date Received:	**04/17/2015 08:55**	**%Moisture:**	**10**
Client ID:	**B312K3**			**Prep Basis:**	**As Received**
Batch ID:	**1472300**	**Method:**	**DOE HASL 300, 4.5.2.3/Ga-01-**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**04/20/2015 09:57**	**Analyst:**	**MXR1**	**Instrument:**	**GAM05**
Data File:	**G371244001.CNF;2**	**Aliquot:**	**56.917 g**	**Count Time:**	**480 min**
Prep Batch:	**1472300**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**04/20/2015 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.00666	pCi/g	+/-0.024	0.0242	0.0409	0.100
10198-40-0	Cobalt-60	U	-0.0149	pCi/g	+/-0.0235	0.0244	0.0382	0.050
14683-23-9	Europium-152	U	0.0134	pCi/g	+/-0.0585	0.0589	0.0955	0.100
15585-10-1	Europium-154	U	0.0781	pCi/g	+/-0.0693	0.078	0.120	
14391-16-3	Europium-155	U	0.0462	pCi/g	+/-0.044	0.049	0.0753	
14331-85-2	Protactinium-231	U	0.0915	pCi/g	+/-0.300	0.303	0.455	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).

Rad

Certificate of Analysis
Sample Summary

SDG Number:	**GEL371244**	**Client:**	**CPRC001**	**Project:**	**CPRC0F11031**
Lab Sample ID:	**371244001**	**Date Collected:**	**04/16/2015 08:30**	**Matrix:**	**OTHER SOLID**
		Date Received:	**04/17/2015 08:55**	**%Moisture:**	**10**
Client ID:	**B312K3**			**Prep Basis:**	**As Received**
Batch ID:	**1472805**	**Method:**	**DOE EML HASL-300,I-01 Mo**	**SOP Ref:**	**GL-RAD-A-006**
Run Date:	**04/21/2015 10:20**	**Analyst:**	**BSW1**	**Instrument:**	**XRAY1**
Data File:	**I371244001.CNF;1**	**Aliquot:**	**1.027 g**	**Count Time:**	**60 min**
Prep Batch:	**1472805**	**Prep Method:**	**DOE EML HASL-300,I-01 M**		
Prep Date:	**04/21/2015 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.176	pCi/g	+/-0.544	0.550	1.06	2.00

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).

Rad

Certificate of Analysis
Sample Summary

SDG Number:	**GEL371244**	**Client:**	**CPRC001**	**Project:**	**CPRC0F11031**
Lab Sample ID:	**371244001**	**Date Collected:**	**04/16/2015 08:30**	**Matrix:**	**OTHER SOLID**
		Date Received:	**04/17/2015 08:55**	**%Moisture:**	**10**
Client ID:	**B312K3**			**Prep Basis:**	**As Received**
Batch ID:	**1472403**	**Method:**	**DOE RESL Ni-1, Modified**	**SOP Ref:**	**GL-RAD-A-022**
Run Date:	**04/23/2015 06:42**	**Analyst:**	**TYJ1**	**Instrument:**	**LSCSILVER**
Data File:	**N1472403.xls**	**Aliquot:**	**0.508 g**	**Count Time:**	**40 min**
Prep Batch:	**1472403**	**Prep Method:**	**DOE RESL Ni-1, Modified**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**04/20/2015 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
NI-63	Nickel-63	U	4.60	pCi/g	+/-4.55	4.63	7.61	10.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Nickel Carrier	14.2	25.1	mg	56.6	(25%-125%)

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).

Rad

Certificate of Analysis
Sample Summary

SDG Number:	**GEL371244**	**Client:**	**CPRC001**	**Project:**	**CPRC0F11031**
Lab Sample ID:	**371244001**	**Date Collected:**	**04/16/2015 08:30**	**Matrix:**	**OTHER SOLID**
		Date Received:	**04/17/2015 08:55**	**%Moisture:**	**10**
Client ID:	**B312K3**			**Prep Basis:**	**As Received**
Batch ID:	**1472405**	**Method:**	**NERC ORD**	**SOP Ref:**	**GL-RAD-A-031**
Run Date:	**04/29/2015 14:22**	**Analyst:**	**EXK2**	**Instrument:**	**LSCGOLD**
Data File:	**SE1472405.xls**	**Aliquot:**	**0.3855 g**	**Count Time:**	**120 min**
Prep Batch:	**1472405**	**Prep Method:**	**NERC ORD**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**04/29/2015 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15758-45-9	Selenium-79	U	0.102	pCi/g	+/-1.95	1.95	3.32	10.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Selenium Carrier	17.9	20.0	mg	89.5	(25%-125%)

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).

Rad

Certificate of Analysis
Sample Summary

SDG Number:	**GEL371244**	**Client:**	**CPRC001**	**Project:**	**CPRC0F11031**
Lab Sample ID:	**371244001**	**Date Collected:**	**04/16/2015 08:30**	**Matrix:**	**OTHER SOLID**
		Date Received:	**04/17/2015 08:55**	**%Moisture:**	**10**
Client ID:	**B312K3**			**Prep Basis:**	**As Received**
Batch ID:	**1472416**	**Method:**	**DOE EML HASL-300, Tc-02-**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**04/28/2015 07:32**	**Analyst:**	**MYM1**	**Instrument:**	**LSCGOLD**
Data File:	**E1472416.xls**	**Aliquot:**	**0.348 g**	**Count Time:**	**30 min**
Prep Batch:	**1472416**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**04/23/2015 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-2.38	pCi/g	+/-6.35	6.35	11.1	15.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	37200	48600	CPM	76.6	(15%-125%)

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).

Rad

Certificate of Analysis
Sample Summary

SDG Number:	**GEL371244**	**Client:**	**CPRC001**	**Project:**	**CPRC0F11031**
Lab Sample ID:	**371244001**	**Date Collected:**	**04/16/2015 08:30**	**Matrix:**	**OTHER SOLID**
		Date Received:	**04/17/2015 08:55**	**%Moisture:**	**10**
Client ID:	**B312K3**			**Prep Basis:**	**As Received**
Batch ID:	**1472422**	**Method:**	**EPA 906.0 Modified**	**SOP Ref:**	**GL-RAD-A-002**
Run Date:	**04/21/2015 14:30**	**Analyst:**	**BYS1**	**Instrument:**	**LSCGOLD**
Data File:	**T1472422R.xls**	**Aliquot:**	**1.33 g**	**Count Time:**	**20 min**
Prep Batch:	**1472422**	**Prep Method:**	**EPA 906.0 Modified**		
Prep Date:	**04/20/2015 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-13.8	pCi/g	+/-12.4	12.4	24.4	30.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

Rad

Certificate of Analysis
Sample Summary

SDG Number:	**GEL371244**	**Client:**	**CPRC001**	**Project:**	**CPRC0F11031**
Lab Sample ID:	**371244001**	**Date Collected:**	**04/16/2015 08:30**	**Matrix:**	**OTHER SOLID**
		Date Received:	**04/17/2015 08:55**	**%Moisture:**	**10**
Client ID:	**B312K3**			**Prep Basis:**	**As Received**
Batch ID:	**1472436**	**Method:**	**EPA EERF C-01 Modified**	**SOP Ref:**	**GL-RAD-A-003**
Run Date:	**04/23/2015 14:16**	**Analyst:**	**EXK2**	**Instrument:**	**LSCGREEN**
Data File:	**C1472436.xls**	**Aliquot:**	**0.5004 g**	**Count Time:**	**40 min**
Prep Batch:	**1472436**	**Prep Method:**	**EPA EERF C-01 Modified**		
Prep Date:	**04/23/2015 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	1.14	pCi/g	+/-2.35	2.35	3.99	5.00

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).

Quality Control Data

GEL LABORATORIES LLC

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

QC Summary

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

Contact: Mr. Scot Fitzgerald

Workorder: 371244

Report Date: May 1, 2015

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Alpha Spec									
Batch 1472490									
QC1203302562 MB									
Americium-241			U	-0.0888	pCi/g			MXS2	04/22/1509:20
Uncert:				+/-0.241					
TPU:				+/-0.241					
**Americium-243 Tracer	19.4			14.3	pCi/g	REC: 74	(15%-125%)		
Uncert:				+/-2.39					
TPU:				+/-3.56					
QC1203302563 371244001 DUP									
Americium-241	U	0.115	U	0.256	pCi/g				
Uncert:		+/-0.263		+/-0.415		RPD: 0	N/A		
TPU:		+/-0.264		+/-0.416		RER: 0.563	(0-2)		
**Americium-243 Tracer	21.2	15.8		13.8	pCi/g	REC: 65	(15%-125%)		
Uncert:		+/-2.37		+/-2.72					
TPU:		+/-3.53		+/-4.04					
QC1203302564 LCS									
Americium-241	12.8			13.3	pCi/g	REC: 104	(80%-120%)		
Uncert:				+/-2.01					
TPU:				+/-2.70					
**Americium-243 Tracer	19.4			15.5	pCi/g	REC: 80	(15%-125%)		
Uncert:				+/-2.41					
TPU:				+/-3.58					
Batch 1472491									
QC1203302565 MB									
Plutonium-238			U	-0.0329	pCi/g			MXS2	04/22/1509:20
Uncert:				+/-0.227					
TPU:				+/-0.227					
Plutonium-239/240			U	0.0209	pCi/g				
Uncert:				+/-0.219					
TPU:				+/-0.219					
**Plutonium-242 Tracer	19.7			15.3	pCi/g	REC: 78	(15%-125%)		
Uncert:				+/-2.39					
TPU:				+/-3.56					
QC1203302566 371244001 DUP									
Plutonium-238	U	0.125	U	0.402	pCi/g				
Uncert:		+/-0.347		+/-0.638		RPD: 0	N/A		
TPU:		+/-0.347		+/-0.643		RER: 0.742	(0-2)		
Plutonium-239/240	U	0.125	U	0.363	pCi/g				
Uncert:		+/-0.347		+/-0.642		RPD: 0	N/A		
TPU:		+/-0.347		+/-0.646		RER: 0.637	(0-2)		
**Plutonium-242 Tracer	19.7	3.84		6.88	pCi/g	REC: 35	(15%-125%)		
Uncert:		+/-2.21		+/-3.53					
TPU:		+/-3.32		+/-5.11					
QC1203302567 LCS									
Plutonium-238			U	0.244	pCi/g				04/23/1509:59
Uncert:				+/-0.387					

QC Summary

Workorder: 371244

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Alpha Spec									
Batch 1472491									
	TPU:			+/-0.389					
Plutonium-239/240	19.7			22.4	pCi/g	REC: 114	(80%-120%)		
	Uncert:			+/-2.90					
	TPU:			+/-4.44					
**Plutonium-242 Tracer	19.7			12.1	pCi/g	REC: 61	(15%-125%)		
	Uncert:			+/-2.73					
	TPU:			+/-4.02					
Batch 1472492									
QC1203302568 MB									
Uranium-233/234			U	0.113	pCi/g			MXS2	04/22/15 09:20
	Uncert:			+/-0.298					
	TPU:			+/-0.298					
Uranium-235/236			U	-0.0429	pCi/g				
	Uncert:			+/-0.190					
	TPU:			+/-0.190					
Uranium-238			U	0.055	pCi/g				
	Uncert:			+/-0.206					
	TPU:			+/-0.207					
**Uranium-232 Tracer	21.3			16.2	pCi/g	REC: 76	(15%-125%)		
	Uncert:			+/-2.46					
	TPU:			+/-4.21					
QC1203302569 371244001 DUP									
Uranium-233/234	U	-0.0851	U	0.336	pCi/g				
	Uncert:	+/-0.197		+/-0.499		RPD: 0	N/A		
	TPU:	+/-0.198		+/-0.503		RER: 1.53	(0-2)		
Uranium-235/236	U	-0.0789	U	-0.0657	pCi/g				
	Uncert:	+/-0.238		+/-0.290		RPD: 0	N/A		
	TPU:	+/-0.239		+/-0.291		RER: 0.0687	(0-2)		
Uranium-238	U	-0.0213	U	-0.106	pCi/g				
	Uncert:	+/-0.183		+/-0.246		RPD: 0	N/A		
	TPU:	+/-0.184		+/-0.247		RER: 0.541	(0-2)		
**Uranium-232 Tracer	21.3	13.7		11.8	pCi/g	REC: 56	(15%-125%)		
	Uncert:	+/-2.75		+/-3.09					
	TPU:	+/-4.56		+/-4.97					
QC1203302570 LCS									
Uranium-233/234				28.1	pCi/g				
	Uncert:			+/-2.71					
	TPU:			+/-5.20					
Uranium-235/236				1.37	pCi/g				
	Uncert:			+/-0.694					
	TPU:			+/-0.727					
Uranium-238	27.2			28.2	pCi/g	REC: 104	(80%-120%)		
	Uncert:			+/-2.71					
	TPU:			+/-5.22					
**Uranium-232 Tracer	21.3			18.9	pCi/g	REC: 89	(15%-125%)		
	Uncert:			+/-2.37					
	TPU:			+/-4.11					
Batch 1473293									
QC1203304706 MB									

QC Summary

Workorder: 371244

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Alpha Spec									
Batch 1473293									
Thorium-232			U	-0.0415	pCi/g			MXS2	04/27/1509:37
	Uncert:			+/-0.120					
	TPU:			+/-0.120					
**Thorium-229 Tracer	36.2			30.7	pCi/g	REC: 85	(15%-125%)		
	Uncert:			+/-1.96					
	TPU:			+/-4.39					
QC1203304707 371244001 DUP									
Thorium-232	U	0.113	U	0.0685	pCi/g				
	Uncert:	+/-0.250		+/-0.143		RPD: 0	N/A		
	TPU:	+/-0.251		+/-0.143		RER: 0.302	(0-2)		
**Thorium-229 Tracer	36.2	28.6		29.8	pCi/g	REC: 82	(15%-125%)		
	Uncert:	+/-2.16		+/-1.97					
	TPU:	+/-4.68		+/-4.40					
QC1203304708 LCS									
Thorium-232	36.1			38.4	pCi/g	REC: 106	(80%-120%)		
	Uncert:			+/-1.94					
	TPU:			+/-4.57					
**Thorium-229 Tracer	36.2			35.1	pCi/g	REC: 97	(15%-125%)		
	Uncert:			+/-1.90					
	TPU:			+/-4.33					
Batch 1473375									
QC1203304928 MB									
Neptunium-237			U	-0.0237	pCi/g			MXS2	04/25/1511:25
	Uncert:			+/-0.164					
	TPU:			+/-0.164					
**Americium-243 Tracer	1580			1280	pCi/g	REC: 82	(15%-125%)		
QC1203304929 371244001 DUP									
Neptunium-237	U	-0.0283	U	-0.0511	pCi/g				
	Uncert:	+/-0.166		+/-0.118		RPD: 0	N/A		
	TPU:	+/-0.167		+/-0.118		RER: 0.218	(0-2)		
**Americium-243 Tracer	1840	1490		1850	pCi/g	REC: 100	(15%-125%)		
QC1203304930 LCS									
Neptunium-237	34.8			38.8	pCi/g	REC: 112	(80%-120%)		
	Uncert:			+/-2.94					
	TPU:			+/-5.13					
**Americium-243 Tracer	1580			1350	pCi/g	REC: 85	(15%-125%)		
Rad Gamma Spec									
Batch 1472300									
QC1203302031 MB									
Cesium-137			U	-0.000357	pCi/g			MXR1	04/20/1510:28
	Uncert:			+/-0.0157					
	TPU:			+/-0.0157					
Cobalt-60			U	-0.00727	pCi/g				
	Uncert:			+/-0.0159					
	TPU:			+/-0.0162					
Europium-152			U	0.0436	pCi/g				
	Uncert:			+/-0.0416					
	TPU:			+/-0.0462					
Europium-154			U	0.0291	pCi/g				

QC Summary

Workorder: 371244

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gamma Spec									
Batch 1472300									
	Uncert:			+/-0.0405					
	TPU:			+/-0.0426					
Europium-155			U	0.0023	pCi/g				
	Uncert:			+/-0.0322					
	TPU:			+/-0.0322					
Protactinium-231			U	0.106	pCi/g				
	Uncert:			+/-0.183					
	TPU:			+/-0.190					
QC1203302032 371247001 DUP									
Cesium-137	U	0.00495	U	-0.00144	pCi/g				04/20/1510:28
	Uncert:	+/-0.0165		+/-0.0175		RPD:	0	N/A	
	TPU:	+/-0.0167		+/-0.0175		RER:	0.518	(0-2)	
Cobalt-60	U	0.0238	U	0.00565	pCi/g				
	Uncert:	+/-0.0178		+/-0.0186		RPD:	0	N/A	
	TPU:	+/-0.0208		+/-0.0188		RER:	1.27	(0-2)	
Europium-152	U	-0.0251	U	-0.045	pCi/g				
	Uncert:	+/-0.0487		+/-0.0425		RPD:	0	N/A	
	TPU:	+/-0.0501		+/-0.0473		RER:	0.567	(0-2)	
Europium-154	U	-0.0709	U	-0.0224	pCi/g				
	Uncert:	+/-0.0662		+/-0.058		RPD:	0	N/A	
	TPU:	+/-0.0737		+/-0.0589		RER:	1.01	(0-2)	
Europium-155	X	0.123	X	0.0944	pCi/g				
	Uncert:	+/-0.0563		+/-0.0555		RPD:	0	(0% - 100%)	
	TPU:	+/-0.0577		+/-0.0566		RER:	0.688	(0-2)	
Protactinium-231		0.754	X	0.851	pCi/g				
	Uncert:	+/-0.278		+/-0.299		RPD:	12	(0% - 100%)	
	TPU:	+/-0.324		+/-0.357		RER:	0.394	(0-2)	
QC1203302033 LCS									
Americium-241	490			566	pCi/g	REC:	115	(80%-120%)	04/20/1510:21
	Uncert:			+/-11.4					
	TPU:			+/-40.3					
Cesium-137	185			182	pCi/g	REC:	98	(80%-120%)	
	Uncert:			+/-3.31					
	TPU:			+/-14.8					
Cobalt-60	194			185	pCi/g	REC:	95	(80%-120%)	
	Uncert:			+/-3.79					
	TPU:			+/-14.8					
Europium-152			U	1.17	pCi/g				
	Uncert:			+/-1.78					
	TPU:			+/-1.86					
Europium-154			U	1.11	pCi/g				
	Uncert:			+/-1.42					
	TPU:			+/-1.51					
Europium-155			U	-0.531	pCi/g				
	Uncert:			+/-1.49					
	TPU:			+/-1.51					
Protactinium-231			U	0.930	pCi/g				
	Uncert:			+/-7.93					
	TPU:			+/-7.95					
Batch 1472805									

QC Summary

Workorder: 371244

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria		Range	Analyst	Date Time
Rad Gamma Spec										
Batch 1472805										
QC1203303484 MB										
Iodine-129			U	0.596	pCi/g				BSW1	04/21/1510:21
Uncert:				+/-1.11						
TPU:				+/-1.11						
QC1203303485 371244001 DUP										
Iodine-129	U	-0.176	U	-0.127	pCi/g					04/21/1510:21
Uncert:		+/-0.544		+/-0.251		RPD:	0	N/A		
TPU:		+/-0.550		+/-0.258		RER:	0.157	(0-2)		
QC1203303486 371244001 MS										
Iodine-129	39.7 U	-0.176		36.6	pCi/g	REC:	92	(75%-125%)		04/21/1510:22
Uncert:		+/-0.544		+/-4.72						
TPU:		+/-0.550		+/-5.97						
QC1203303487 LCS										
Iodine-129	39.4			38.8	pCi/g	REC:	98	(80%-120%)		04/21/1510:22
Uncert:				+/-5.39						
TPU:				+/-6.64						
Rad Gas Flow										
Batch 1472580										
QC1203302755 MB										
Strontium-90			U	-0.0342	pCi/g				KSD1	04/27/1517:50
Uncert:				+/-0.223						
TPU:				+/-0.223						
**Strontium Carrier	8.10			7.70	mg	REC:	95	(25%-125%)		
QC1203302756 371247001 DUP										
Strontium-90	U	-0.398	U	0.274	pCi/g					04/26/1511:15
Uncert:		+/-0.391		+/-0.459		RPD:	0	N/A		
TPU:		+/-0.391		+/-0.462		RER:	2.18	(0-2)		
**Strontium Carrier	8.10	6.60		6.90	mg	REC:	85	(25%-125%)		
QC1203302757 LCS										
Strontium-90	41.2			40.8	pCi/g	REC:	99	(80%-120%)		04/26/1511:04
Uncert:				+/-2.04						
TPU:				+/-7.78						
**Strontium Carrier	8.10			6.90	mg	REC:	85	(25%-125%)		
Batch 1472604										
QC1203302859 MB										
Alpha			U	-0.903	pCi/g				KXB2	04/23/1519:13
Uncert:				+/-0.764						
TPU:				+/-0.764						
Beta			U	0.350	pCi/g					
Uncert:				+/-0.880						
TPU:				+/-0.882						
QC1203302860 371247001 DUP										
Alpha		12.2		17.8	pCi/g					04/30/1515:06
Uncert:		+/-2.40		+/-4.10		RPD:	37*	(0% - 20%)		
TPU:		+/-3.37		+/-5.38		RER:	1.73	(0-2)		
Beta		27.0		25.0	pCi/g					
Uncert:		+/-1.93		+/-2.96		RPD:	8	(0% - 20%)		
TPU:		+/-4.23		+/-4.60		RER:	0.635	(0-2)		
QC1203302861 371247001 MS										
Alpha	118	12.2		114	pCi/g	REC:	86	(75%-125%)		04/23/1513:21

QC Summary

Workorder: 371244

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gas Flow									
Batch 1472604									
	Uncert:	+/-2.40		+/-16.0					
	TPU:	+/-3.37		+/-27.2					
Beta	459	27.0		491	pCi/g	REC: 101	(75%-125%)		
	Uncert:	+/-1.93		+/-18.6					
	TPU:	+/-4.23		+/-70.9					
QC1203302862 371247001 MSD									
Alpha	115	12.2		128	pCi/g	REC: 101	(75%-125%)		04/23/1513:21
	Uncert:	+/-2.40		+/-16.1		RPD: 11	(0%-20%)		
	TPU:	+/-3.37		+/-29.5		RER: 0.664	(0-2)		
Beta	446	27.0		502	pCi/g	REC: 107	(75%-125%)		
	Uncert:	+/-1.93		+/-18.6		RPD: 2	(0%-20%)		
	TPU:	+/-4.23		+/-72.9		RER: 0.212	(0-2)		
QC1203302863 LCS									
Alpha	115			99.6	pCi/g	REC: 87	(80%-120%)		04/23/1513:21
	Uncert:			+/-10.6					
	TPU:			+/-22.0					
Beta	446			482	pCi/g	REC: 108	(80%-120%)		
	Uncert:			+/-17.9					
	TPU:			+/-69.1					
Rad Liquid Scintillation									
Batch 1472403									
QC1203302283 MB									
Nickel-63			U	2.13	pCi/g			TYJ1	04/23/1507:24
	Uncert:			+/-4.00					
	TPU:			+/-4.02					
**Nickel Carrier	25.1			15.1	mg	REC: 60	(25%-125%)		
QC1203302284 371244001 DUP									
Nickel-63	U	4.60	U	1.31	pCi/g				04/23/1508:06
	Uncert:	+/-4.55		+/-3.60		RPD: 0	N/A		
	TPU:	+/-4.63		+/-3.61		RER: 1.10	(0-2)		
**Nickel Carrier	25.1	14.2		16.6	mg	REC: 66	(25%-125%)		
QC1203302285 LCS									
Nickel-63	252			274	pCi/g	REC: 109	(80%-120%)		04/23/1508:48
	Uncert:			+/-8.46					
	TPU:			+/-51.1					
**Nickel Carrier	25.1			16.1	mg	REC: 64	(25%-125%)		
Batch 1472405									
QC1203302286 MB									
Selenium-79			U	-1.24	pCi/g			EXK2	04/29/1516:26
	Uncert:			+/-2.14					
	TPU:			+/-2.14					
**Selenium Carrier	20.0			14.9	mg	REC: 75	(25%-125%)		
QC1203302287 371244001 DUP									
Selenium-79	U	0.102	U	-0.0268	pCi/g				04/29/1518:30
	Uncert:	+/-1.95		+/-1.76		RPD: 0	N/A		
	TPU:	+/-1.95		+/-1.76		RER: 0.0964	(0-2)		
**Selenium Carrier	20.0	17.9		18.2	mg	REC: 91	(25%-125%)		
QC1203302288 LCS									
Selenium-79	208			197	pCi/g	REC: 95	(80%-120%)		04/29/1520:33
	Uncert:			+/-4.80					

QC Summary

Workorder: 371244

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Liquid Scintillation									
Batch 1472405									
	TPU:			+/-44.3					
**Selenium Carrier	20.0			16.8	mg	REC: 84	(25%-125%)		
Batch 1472416									
QC1203302322 MB									
Technetium-99			U	0.237	pCi/g			MYM1	04/28/1508:36
	Uncert:			+/-4.87					
	TPU:			+/-4.87					
**Technetium-99m Tracer	48600			45600	CPM	REC: 94	(15%-125%)		
QC1203302323 371247001 DUP									
Technetium-99		U -1.62	U	1.95	pCi/g				04/28/1509:08
	Uncert:	+/-5.32		+/-5.13		RPD: 0	N/A		
	TPU:	+/-5.32		+/-5.13		RER: 0.947	(0-2)		
**Technetium-99m Tracer	48600	46300		45600	CPM	REC: 94	(15%-125%)		
QC1203302324 LCS									
Technetium-99	247			238	pCi/g	REC: 96	(80%-120%)		04/28/1509:40
	Uncert:			+/-9.88					
	TPU:			+/-29.4					
**Technetium-99m Tracer	48600			45500	CPM	REC: 94	(15%-125%)		
Batch 1472422									
QC1203302346 MB									
Tritium			U	-7.44	pCi/g			BYS1	04/21/1514:52
	Uncert:			+/-13.1					
	TPU:			+/-13.1					
QC1203302347 371244001 DUP									
Tritium		U -13.8	U	3.56	pCi/g				04/21/1515:13
	Uncert:	+/-12.4		+/-14.7		RPD: 0	N/A		
	TPU:	+/-12.4		+/-14.8		RER: 1.76	(0-2)		
QC1203302348 371244001 MS									
Tritium	72.7	U -13.8		75.4	pCi/g	REC: 104	(75%-125%)		04/21/1515:34
	Uncert:	+/-12.4		+/-19.2					
	TPU:	+/-12.4		+/-25.7					
QC1203302349 LCS									
Tritium	69.4			73.7	pCi/g	REC: 106	(80%-120%)		04/21/1515:56
	Uncert:			+/-18.8					
	TPU:			+/-25.2					
Batch 1472436									
QC1203302390 MB									
Carbon-14			U	2.62	pCi/g			EXK2	04/23/1514:57
	Uncert:			+/-2.24					
	TPU:			+/-2.25					
QC1203302391 371244001 DUP									
Carbon-14		U 1.14	U	0.0837	pCi/g				04/23/1515:39
	Uncert:	+/-2.35		+/-2.16		RPD: 0	N/A		
	TPU:	+/-2.35		+/-2.16		RER: 0.647	(0-2)		
QC1203302392 371244001 MS									
Carbon-14	150	U 1.14		163	pCi/g	REC: 109	(75%-125%)		04/23/1516:21
	Uncert:	+/-2.35		+/-5.14					
	TPU:	+/-2.35		+/-13.1					
QC1203302393 LCS									
Carbon-14	141			145	pCi/g	REC: 103	(80%-120%)		04/23/1517:03

QC Summary

Workorder: 371244

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date	Time
Rad Liquid Scintillation										
Batch 1472436										
				Uncert:		+/-4.73				
				TPU:		+/-11.7				

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
- 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.