

June 29, 2015



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2040 Savage Road Charleston, SC 29407  
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[gel.com](http://gel.com)

June 19, 2015

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

Re: CHPRC SAF F15-027  
Work Order: 374988  
SDG: GEL374988

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 12, 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,

*Chelsea Seagle*  
Chelsea Seagle for  
Heather Shaffer  
Project Manager

Purchase Order: 303581 - C05  
Chain of Custody: F15-027-004, F15-027-011, F15-027-015, F15-027-017, F15-027-023, F15-027-025,  
F15-027-028, F15-027-030, F15-027-032, F15-027-033, F15-027-035, F15-027-037, F15-027-039, F15-027-041  
and F15-027-043  
Enclosures



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# Case Narrative

June 29, 2015

General Narrative  
for  
CH2MHill Plateau Remediation Company  
CHPRC SAF F15-027  
SDG: GEL374988

June 19, 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 June 12, 2015, for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

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

**Sample Identification**

The laboratory received the following samples:

<b><u>Laboratory Identification</u></b>	<b><u>Sample Description</u></b>
374988001	B30RH4
374988002	B30RF0
374988003	B30RF2
374988004	B30RF5
374988005	B30RB9
374988006	B30RF7
374988007	B30RH8
374988008	B30RJ0
374988009	B30RH6
374988010	B30RF9
374988011	B30RD4
374988012	B30RH0
374988013	B30RH2
374988014	B30RC7
374988015	B30RD2

**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.

June 29, 2015

Data Package

The enclosed data package contains the following sections: General Narrative, Chain of Custody and Supporting Documentation, and data from the following fractions: General Chemistry, Metals and Radiochemistry.

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.

*Chelsea Seagle*  
Chelsea Seagle for  
Heather Shaffer  
Project Manager

# **Chain of Custody and Supporting Documentation**



CH2M Hill Plateau Remediation Company

COLLECTOR: *Brotherton*

SAMPLING LOCATION: C8796, Interval 12

ICE CHEST NO.: *GWS-343*

SHIPPED TO: GEL Laboratories, LLC

COMPANY CONTACT: SUMNER, LC

TELEPHONE NO.: 376-3922

PROJECT COORDINATOR: TODAYK, D

PRICE CODE: *CoS*

AIR QUALITY:

METHOD OF SHIPMENT: FEDERAL EXPRESS

ACTUAL SAMPLE DEPTH: *ft.*

FIELD LOGBOOK NO.: *HNF-N-645-3 p3*

OFFSITE PROPERTY NO.: *5716*

BILL OF LADING/AIR BILL NO.: *TT38 1332 2444*

PAGE 1 OF 1

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	HOLDING TIME	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	SAMPLE DATE	SAMPLE TIME
A=Air DL=Drum L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WF=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	None	None	P	1	125mL	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	<i>5-18-15</i>	<i>1344</i>
SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TIE TO: B30RD9									<input checked="" type="checkbox"/>

374988

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME
<i>Brotherton</i>	<i>5-18-15 1330</i>	<i>SSC #2</i>		<i>5-18-15 1330</i>
<i>550 #2</i>	<i>JUN 11 2015 1000</i>	<i>EL. Kauer/CHPRC</i>	<i>EL. Kauer/CHPRC</i>	<i>JUN 11 2015 1030</i>
<i>550 #2</i>	<i>JUN 11 2015 1100</i>	<i>EL. Kauer/CHPRC</i>	<i>EL. Kauer/CHPRC</i>	<i>JUN 11 2015 1130</i>
<i>550 #2</i>	<i>JUN 11 2015 1400</i>	<i>EL. Kauer/CHPRC</i>	<i>FEDEX</i>	<i>JUN 11 2015 1400</i>
<i>550 #2</i>	<i>JUN 11 2015 1400</i>	<i>EL. Kauer/CHPRC</i>	<i>FEDEX</i>	<i>JUN 11 2015 1400</i>
<i>550 #2</i>	<i>JUN 11 2015 1400</i>	<i>EL. Kauer/CHPRC</i>	<i>FEDEX</i>	<i>JUN 11 2015 1400</i>
<i>550 #2</i>	<i>JUN 11 2015 1400</i>	<i>EL. Kauer/CHPRC</i>	<i>FEDEX</i>	<i>JUN 11 2015 1400</i>
<i>550 #2</i>	<i>JUN 11 2015 1400</i>	<i>EL. Kauer/CHPRC</i>	<i>FEDEX</i>	<i>JUN 11 2015 1400</i>
<i>550 #2</i>	<i>JUN 11 2015 1400</i>	<i>EL. Kauer/CHPRC</i>	<i>FEDEX</i>	<i>JUN 11 2015 1400</i>

LABORATORY SECTION: RECEIVED BY

FINAL SAMPLE DISPOSITION: DISPOSAL METHOD

PRINTED ON 5/11/2015

SPECIAL INSTRUCTIONS

TRVL-15-037  
 (1) Moisture Content - D2216; 6010\_METALS\_ICP: COMMON  
 {Chromium}; 7196\_CR6: COMMON; GAMMA\_GS: COMMON; C14\_LSC:  
 COMMON; AMCMISO\_IE\_PRECIP\_AEA: COMMON; I129\_SEP\_LEPS\_GS:  
 COMMON; PUISO\_PLATE\_AEA: COMMON; SRTOT\_SEP\_PRECIP\_GPC:  
 COMMON; TC99\_EIE\_LSC: COMMON; TRITIUM\_DIST\_LSC: COMMON;  
 UISO\_IE\_PRECIP\_AEA: COMMON;

TRVL-15-037

June 29, 2015

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F15-027-025	PAGE 1 OF 1
COLLECTOR D.L. Floyd/CHPRC	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR TODAK, D	PRICE CODE COS JLK 6/15	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION C8796, Interval 13	PROJECT DESIGNATION 100-KE Characterization Boreholes - Soil	ACTUAL SAMPLE DEPTH 49.5 50.5	SAF NO. F15-027	AIR QUALITY <input type="checkbox"/>	JLK 6/15
ICE CHEST NO. GWS-343	FIELD LOGBOOK NO. HNE-645-3/7	COA 303581	METHOD OF SHIPMENT FEDERAL EXPRESS		
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 5716	BILL OF LADING/AIR BILL NO. 7738 1332 2444			

<b>PRESERVATION</b> None  <b>HOLDING TIME</b> None  <b>TYPE OF CONTAINER</b> P  <b>NO. OF CONTAINER(S)</b> 1  <b>VOLUME</b> 125mL  <b>SAMPLE ANALYSIS</b> SEE ITEM (1) IN SPECIAL INSTRUCTIONS	374988
	<b>SAMPLE DATE</b> 6-8-15  <b>SAMPLE TIME</b> 09:36
	<b>SPECIAL HANDLING AND/OR STORAGE</b> RADIOACTIVE TIE TO: B30RF1
	<b>MATRIX*</b> SOIL
	<b>SAMPLE NO.</b> B30RF2

<b>CHAIN OF POSSESSION</b>		<b>SIGN/ PRINT NAMES</b>		<b>SPECIAL INSTRUCTIONS</b>	
RELINQUISHED BY/REMOVED FROM <i>[Signature]</i>	DATE/TIME MAY 08 2015	RECEIVED BY/STORED IN SSU #2	DATE/TIME MAY 08 2015	TRVL-15-037	
RELINQUISHED BY/REMOVED FROM 540 ER	DATE/TIME JUN 11 2015 11:00	RECEIVED BY/STORED IN E.L. Kauff/CHPRC	DATE/TIME JUN 11 2015 10:00	(1) Moisture Content - D2216; 6010_METALS_ICP: COMMON; C14_LSC: {Chromium}; 7196_CR6: COMMON; GAMMA_GS: COMMON; 1129_SEP_LEPS_GS: COMMON; AMCMISO_IE_PRECIP_AEA: COMMON; 1129_SEP_LEPS_GS: COMMON; PUIISO_PLATE_AEA: COMMON; SRTOT_SEP_PRECIP_GPC: COMMON; TC99_EIE_LSC: COMMON; TRITIUM_DIST_LSC: COMMON; UIISO_IE_PRECIP_AEA: COMMON;	
RELINQUISHED BY/REMOVED FROM <i>[Signature]</i>	DATE/TIME JUN 11 2015 1400	RECEIVED BY/STORED IN B.E. Briggs/CHPRC	DATE/TIME JUN 11 2015 11:30	0.223 KG.	
RELINQUISHED BY/REMOVED FROM <i>[Signature]</i>	DATE/TIME JUN 11 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME JUN 11 2015 1400	TRVL-15-037	
RELINQUISHED BY/REMOVED FROM <i>[Signature]</i>	DATE/TIME JUN 11 2015 1400	RECEIVED BY/STORED IN M.E. [Signature]	DATE/TIME 6-12-15		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME		
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME		

A-6003-618 (REV 2)

June 29, 2015

**CH2MHill Plateau Remediation Company**  
**COLLECTOR** D.L. Floyd/CHPRC  
**SAMPLING LOCATION** CB796, Interval 14 REQ  
**ICE CHEST NO.** 615-343  
**SHIPPED TO** GEL Laboratories, LLC  
**COMPANY CONTACT** SUMNER, LC  
**PROJECT DESIGNATION** 100-KE Characterization Boreholes - Soil  
**FIELD LOGBOOK NO.** HMP-N-645-3  
**OFFSITE PROPERTY NO.** 5716  
**TELEPHONE NO.** 376-3922  
**ACTUAL SAMPLE DEPTH** 49.5 - 51 ft.  
**PROJECT COORDINATOR** TODAYAK, D  
**SAF NO.** F15-027  
**COA** 303581  
**BILL OF LADING/AIR BILL NO.** T738 1332 2444  
**PRICE CODE** COS  
**AIR QUALITY**    
**METHOD OF SHIPMENT** FEDERAL EXPRESS  
**DATA** TURNAROUND 30 Days / 30 Days  
**PAGE 1 OF 1**

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	HOLDING TIME	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	SAMPLE DATE	SAMPLE TIME
A=Air DL=Drum L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	None	None	P	1	125ml	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	6-8-15	07:49
B30RF5	SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TIE TO: B30RF4								

**CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST**  
**CHAIN OF POSSESSION**  
**SPECIAL INSTRUCTIONS** TRVL-15-037  
 (1) Moisture Content - D2216; 6010\_METALS\_ICP: COMMON {Chromium}; 7196\_CR6: COMMON; GAMMA\_GS: COMMON; C14\_LSC: COMMON; AMCMISO\_IE\_PRECIP\_AEA: COMMON; I129\_SEP\_LEPS\_GS: COMMON; PUIISO\_PLATE\_AEA: COMMON; SRTOT\_SEP\_PRECIP\_GPC: COMMON; TC99\_EIE\_LSC: COMMON; TRITIUM\_DIST\_LSC: COMMON; UIISO\_IE\_PRECIP\_AEA: COMMON;

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
D.L. Floyd/CHPRC	MAY 08 2015 12:35	SSU #8	MAY 08 2015 12:35
EL. Kauber/CHPRC	JUN 11 2015 10:00	E.L. Kauber/CHPRC	JUN 11 2015 10:00
B.E. Briggs/CHPRC	JUN 11 2015 11:30	B.E. Briggs/CHPRC	JUN 11 2015 11:30
B.E. Briggs/CHPRC	JUN 1 2015 4:00	FEDEX	
		M.K. Taylor/CHPRC	6-12-15 09:10

**TRVL-15-037**  
**0.198 KG'S**

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

June 29, 2015

**CH2M Hill Plateau Remediation Company**  
**COLLECTOR** D. Brotherton  
**SAMPLING LOCATION** C8796, Interval 2  
**ICE CHEST NO.** GWS-343  
**SHIPPED TO** GEL Laboratories, LLC  
**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**  
**COMPANY CONTACT** SUMNER, LC  
**TELEPHONE NO.** 376-3922  
**PROJECT COORDINATOR** TODAY, D  
**SAF NO.** F15-027  
**COA** 303581  
**BILL OF LADING/AIR BILL NO.** 7738 1332 2444  
**PRICE CODE** COS  
**AIR QUALITY**   
**METHOD OF SHIPMENT** FEDERAL EXPRESS  
**DATA TURNAROUND** 30 Days - 30 Days - 7 Days / 7 Days  
**PAGE 1 OF 1**  
**ORIGINAL**

<b>MATRIX*</b> 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	<b>POSSIBLE SAMPLE HAZARDS/ REMARKS</b> *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.	<b>PRESERVATION</b> None	<b>HOLDING TIME</b> None	<b>TYPE OF CONTAINER</b> P	<b>NO. OF CONTAINER(S)</b> 1	<b>VOLUME</b> 125mL	<b>SAMPLE ANALYSIS</b> SEE ITEM (1) IN SPECIAL INSTRUCTIONS
<b>SPECIAL HANDLING AND/OR STORAGE</b> RADIOACTIVE TIE TO: B30RB8							
<b>SAMPLE NO.</b> B30RB9	<b>MATRIX*</b> SOIL	<b>SAMPLE DATE</b> 5-12-15	<b>SAMPLE TIME</b> 0808				

374988

**CHAIN OF POSSESSION**

<b>RELINQUISHED BY/REMOVED FROM</b> D.W. Brotherton/CHPRC	<b>DATE/TIME</b> 5-12-15 0933	<b>RECEIVED BY/STORED IN</b> SS 4 #2	<b>DATE/TIME</b> 5-12-15 0933
<b>RELINQUISHED BY/REMOVED FROM</b> SS 4 #2	<b>DATE/TIME</b> JUN 11 2015 1000	<b>RECEIVED BY/STORED IN</b> E.L. Kauer/CHPRC	<b>DATE/TIME</b> JUN 11 2015 1000
<b>RELINQUISHED BY/REMOVED FROM</b> E.L. Kauer/CHPRC	<b>DATE/TIME</b> JUN 11 2015 1000	<b>RECEIVED BY/STORED IN</b> B.E. Briggs/CHPRC	<b>DATE/TIME</b> JUN 11 2015 1150
<b>RELINQUISHED BY/REMOVED FROM</b> B.E. Briggs/CHPRC	<b>DATE/TIME</b> JUN 11 2015 1400	<b>RECEIVED BY/STORED IN</b> FEDEX	<b>DATE/TIME</b> JUN 11 2015 1400
<b>RELINQUISHED BY/REMOVED FROM</b> 1 of 263	<b>DATE/TIME</b> JUN 11 2015 1400	<b>RECEIVED BY/STORED IN</b> M. Kirsian/Inchuk	<b>DATE/TIME</b> 6-8-15 0910
<b>RELINQUISHED BY/REMOVED FROM</b> 1 of 263	<b>DATE/TIME</b> JUN 11 2015 1400	<b>RECEIVED BY/STORED IN</b> M. Kirsian/Inchuk	<b>DATE/TIME</b> 6-8-15 0910
<b>RELINQUISHED BY/REMOVED FROM</b> 1 of 263	<b>DATE/TIME</b> JUN 11 2015 1400	<b>RECEIVED BY/STORED IN</b> M. Kirsian/Inchuk	<b>DATE/TIME</b> 6-8-15 0910

**SPECIAL INSTRUCTIONS**  
 TRVL-15-037  
 (1) Moisture Content - D2216; 6010\_METALS\_ICP: COMMON  
 {Chromium}; 7196\_CR6: COMMON; GAMMA\_GS: COMMON; C14\_LSC:  
 COMMON; AMCMISO\_IE\_PRECIP\_AEA: COMMON; I129\_SEP\_LEPS\_GS:  
 COMMON; PUISO\_PLATE\_AEA: COMMON; SRTOT\_SEP\_PRECIP\_GPC:  
 COMMON; TC99\_EIE\_LSC: COMMON; TRITIUM\_DIST\_LSC: COMMON;  
 UISO\_IE\_PRECIP\_AEA: COMMON;  
 WT 196.6 .1966 Kg  
 TRVL-15-037

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

PRINTED ON 5/11/2015 A-6003-618 (REV 2)



June 29, 2015

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		PAGE 1 OF 1	
COLLECTOR D.L. Floyd/CHPRC	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR TODAK, D	PRICE CODE 685 Jett 6/11/15	DATA TURNAROUND -30 Days / -30 Days Jett 6/11/15
SAMPLING LOCATION C8796, Interval 22	PROJECT DESIGNATION 100-KE Characterization Boreholes - Soil	FIELD LOGBOOK NO. HNFN-645-3 Pg. 7 OFFSITE PROPERTY NO. 5716	SAF NO. FL5-027	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT FEDERAL EXPRESS
ICE CHEST NO. GWS343	ACTUAL SAMPLE DEPTH 64.6 67.6	COA 303581	BILL OF LADING/AIR BILL NO. 7738 1332 2444		
SHIPPED TO GEL Laboratories, LLC	ORIGINAL				

MATRIX*	PRESERVATION	HOLDING TIME	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS
A=Air DL=Drum L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	None	None	P	1	125ml	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
POSSIBLE SAMPLE HAZARDS/REMARKS *Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.						
SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TIE TO: B30RH7						
SAMPLE NO. B30RH8	MATRIX*	SAMPLE DATE 6-8-15	SAMPLE TIME 13:22			

374988

CHAIN OF POSSESSION		SIGN/PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM D.L. Floyd/CHPRC	DATE/TIME MAY 08 2015 1445	RECEIVED BY/STORED IN SSU 2	DATE/TIME MAY 08 2015 1445	TRVL-15-037	
RELINQUISHED BY/REMOVED FROM SSU #2	DATE/TIME JUN 11 2015 1000	RECEIVED BY/STORED IN E.L. Kauer/CHPRC	DATE/TIME JUN 11 2015 1000	(1) Moisture Content - D2216; 6010_METALS_ICP: COMMON {Chromium}; 7196_CR6: COMMON; GAMMA_GS: COMMON; C14_LSC: COMMON; AMCMISO_IE_PRECIP_AEA: COMMON; I129_SEP_LEPS_GS: COMMON; PUIISO_PLATE_AEA: COMMON; SRTOT_SEP_PRECIP_GPC: COMMON; TC99_EIE_LSC: COMMON; TRITIUM_DIST_LSC: COMMON; UIISO_IE_PRECIP_AEA: COMMON;	
RELINQUISHED BY/REMOVED FROM E.L. Kauer/CHPRC	DATE/TIME JUN 11 2015 1130	RECEIVED BY/STORED IN FEDEX	DATE/TIME JUN 11 2015 1130	TRVL-15-037	
RELINQUISHED BY/REMOVED FROM E.L. Kauer/CHPRC	DATE/TIME JUN 11 2015 1400	RECEIVED BY/STORED IN M. Koston/CHPRC	DATE/TIME 6/25 0910	0.314 KG'S	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	TITLE	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	DISPOSED BY	
LABORATORY SECTION	RECEIVED BY	DISPOSAL METHOD		DATE/TIME	
FINAL SAMPLE DISPOSITION	RECEIVED BY	DISPOSAL METHOD		DATE/TIME	

A-6003-618 (REV 2)









June 29, 2015

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		PAGE 1 OF 1	
COLLECTOR D.L. Floyd/CHPRC	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR TODAK, D	PRICE CODE COS JULY 14/15	DATA TURNAROUND 30-Days / 30-Days
SAMPLING LOCATION C8796, Interval 16 DUP REQ	PROJECT DESIGNATION 100-KE Characterization Boreholes - Soil	ACTUAL SAMPLE DEPTH 5'4 5'2-8	SAF NO. F15-027	AIR QUALITY <input type="checkbox"/>	ORIGINAL
ICE CHEST NO. GWS-343	FIELD LOGBOOK NO. 100-KE-45-3/7	OFFSITE PROPERTY NO. 5716	COA 303581	METHOD OF SHIPMENT FEDERAL EXPRESS	
SHIPPED TO GEL Laboratories, LLC	BILL OF LADING/AIR BILL NO. 7738 1332 2444				

374988

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION None	HOLDING TIME None	TYPE OF CONTAINER P	NO. OF CONTAINER(S) 1	VOLUME 125mL	SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS
SPECIAL HANDLING AND/OR STORAGE							
SAMPLE NO. B30RH0	MATRIX* SOIL	SAMPLE DATE 6-8-15	SAMPLE TIME 10:14	J			

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM D.L. Floyd/CHPRC	DATE/TIME MAY 08 2015 12:35	RECEIVED BY/STORED IN SSV #2	DATE/TIME MAY 08 2015 12:35	TRVL-15-037	
RELINQUISHED BY/REMOVED FROM SSV #2	DATE/TIME JUN 11 2015 10:00	RECEIVED BY/STORED IN E.L. Kauer/CHPRC	DATE/TIME JUN 11 2015 10:00	(1) Moisture Content - D2216; 6010_METALS_ICP: COMMON {Chromium}; 7196_CR6: COMMON; GAMMA_GS: COMMON; C14_LSC: COMMON; AMCMISO_IE_PRECIP_AEA: COMMON; I129_SEP_LEPS_GS: COMMON; PUIISO_PLATE_AEA: COMMON; SRTOT_SEP_PRECIP_GPC: COMMON; TC99_EIE_LSC: COMMON; TRITIUM_DIST_LSC: COMMON; UIISO_IE_PRECIP_AEA: COMMON;	
RELINQUISHED BY/REMOVED FROM E.L. Kauer/CHPRC	DATE/TIME JUN 11 2015 11:30	RECEIVED BY/STORED IN B.E. Briggs/CHPRC	DATE/TIME JUN 11 2015 11:30	TRVL-15-037	
RELINQUISHED BY/REMOVED FROM B.E. Briggs/CHPRC	DATE/TIME JUN 11 2015 14:00	RECEIVED BY/STORED IN FEDEX	DATE/TIME JUN 11 2015 14:00	0-198 KG	
RELINQUISHED BY/REMOVED FROM B.E. Briggs/CHPRC	DATE/TIME JUN 11 2015 14:00	RECEIVED BY/STORED IN K. Kauer/CHPRC	DATE/TIME JUN 11 2015 14:00	TITLE	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	DISPOSED BY	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	DATE/TIME	
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	TITLE		DATE/TIME	

A-6003-618 (REV 2)

June 29, 2015

**CH2M Hill Plateau Remediation Company** CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST PAGE 1 OF 1

**COLLECTOR** D.L. Floyd/CHPRC  
**SAMPLING LOCATION** C8796, Interval 18  
**ICE CHEST NO.** GWS-343  
**SHIPPED TO** GEL Laboratories, LLC

**COMPANY CONTACT** SUMNER, LC  
**TELEPHONE NO.** 376-3922  
**PROJECT COORDINATOR** TODAYAK, D  
**SAF NO.** F15-027  
**COA** 303581

**PROJECT DESIGNATION** 100-KE Characterization Boreholes - Soil  
**FIELD LOGBOOK NO.** HNF-N-645-3  
**ACTUAL SAMPLE DEPTH** 53-1 54.5 ft.  
**OFFSITE PROPERTY NO.** 5716  
**BILL OF LADING/AIR BILL NO.** 7738 1332 2444

**PRICE CODE** C05  
**AIR QUALITY**   
**METHOD OF SHIPMENT** FEDERAL EXPRESS  
**DATA TURNAROUND** 30 Days / 30 Days  
**ORIGINAL**

MATRIX*	PRESERVATION	HOLDING TIME	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS
A=Air DL=Drum L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	None	None	P	1	125mL	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
<b>SPECIAL HANDLING AND/OR STORAGE</b> RADIOACTIVE TIE TO: B30RH1						
<b>SAMPLE NO.</b> B30RH2		<b>SAMPLE DATE</b> 6-8-15	<b>SAMPLE TIME</b> 10:37			<input checked="" type="checkbox"/>

374988

**CHAIN OF POSSESSION**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
D.L. Floyd/CHPRC	MAY 08 2015 12:55	SSU #2	MAY 08 2015 12:55
SSU #2	JUN 11 2015 10:00	E.L. Kauer/CHPRC	JUN 11 2015 10:00
E.L. Kauer/CHPRC	JUN 11 2015 11:00	B.E. Briggs/CHPRC	JUN 11 2015 11:00
B.E. Briggs/CHPRC	JUN 11 2015 14:00	FEDEX	JUN 11 2015 14:00
19 of 263		M. Kinslow/Helfeld	6-17-15 09:00

**SPECIAL INSTRUCTIONS**  
 TRVL-15-037  
 (1) Moisture Content - D2216; 6010\_METALS\_ICP: COMMON; C14\_LSC: {Chromium}; 7196\_CR6: COMMON; GAMMA\_GS: COMMON; I129\_SEP\_LEPS\_GS: COMMON; AMCMISO\_IE\_PRECIP\_AEA: COMMON; I129\_SEP\_LEPS\_GS: COMMON; PUIISO\_PLATE\_AEA: COMMON; SRTOT\_SEP\_PRECIP\_GPC: COMMON; TC99\_EIE\_LSC: COMMON; TRITIUM\_DIST\_LSC: COMMON; UIISO\_IE\_PRECIP\_AEA: COMMON;

TRVL-15-037  
 O-188 K6

**LABORATORY SECTION** RECEIVED BY  
**FINAL SAMPLE DISPOSITION** DISPOSAL METHOD

**TITLE** TRVL-15-037  
**DATE/TIME** O-188 K6  
**DISPOSED BY**

PRINTED ON 5/11/2015 A-6003-618 (REV 2)



June 29, 2015

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F15-027-015	PAGE 1 OF 1
COLLECTOR	D.W. Bratherton/CHPRC	COMPANY CONTACT	SUMNER, LC	PROJECT COORDINATOR	TODAK, D
SAMPLING LOCATION	C8796, Interval 8 SPT REQ	PROJECT DESIGNATION	100-KE Characterization Boreholes - Soil	SAF NO.	F15-027
ICE CHEST NO.	GWS-343	FIELD LOGBOOK NO.	HNF-N-645-3/4	COA	303581
SHIPPED TO	GEL Laboratories, LLC	OFFSITE PROPERTY NO.	5716	BILL OF LADING/AIR BILL NO.	7738 1332 2444
MATRIX*	A=Air DL=Drum L=Liquid DS=Drum S=Solids L=Liquid O=Oil S=Soil T=Tissue V=Vegetation W=Water X=Other	SELECTION	SELECTION	PRICE CODE	605 JUL 6/11/15
POSSIBLE SAMPLE HAZARDS/REMARKS	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/1ATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION	None	AIR QUALITY	<input type="checkbox"/>
SPECIAL HANDLING AND/OR STORAGE		HOLDING TIME	None	METHOD OF SHIPMENT	FEDERAL EXPRESS
SAMPLE NO.	B30RD2	TYPE OF CONTAINER	P	ACTUAL SAMPLE DEPTH	34.7-38.3
MATRIX*	SOIL	NO. OF CONTAINER(S)	1	TELEPHONE NO.	376-3922
DATE/TIME		VOLUME	125ml	DATE/TIME	5-19-15 0853
DATE/TIME		SEE ITEM (1) IN SPECIAL INSTRUCTIONS		DATE/TIME	

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F15-027-015	PAGE 1 OF 1
COLLECTOR	D.W. Bratherton/CHPRC	COMPANY CONTACT	SUMNER, LC	PROJECT COORDINATOR	TODAK, D
SAMPLING LOCATION	C8796, Interval 8 SPT REQ	PROJECT DESIGNATION	100-KE Characterization Boreholes - Soil	SAF NO.	F15-027
ICE CHEST NO.	GWS-343	FIELD LOGBOOK NO.	HNF-N-645-3/4	COA	303581
SHIPPED TO	GEL Laboratories, LLC	OFFSITE PROPERTY NO.	5716	BILL OF LADING/AIR BILL NO.	7738 1332 2444
MATRIX*	A=Air DL=Drum L=Liquid DS=Drum S=Solids L=Liquid O=Oil S=Soil T=Tissue V=Vegetation W=Water X=Other	SELECTION	SELECTION	PRICE CODE	605 JUL 6/11/15
POSSIBLE SAMPLE HAZARDS/REMARKS	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/1ATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION	None	AIR QUALITY	<input type="checkbox"/>
SPECIAL HANDLING AND/OR STORAGE		HOLDING TIME	None	METHOD OF SHIPMENT	FEDERAL EXPRESS
SAMPLE NO.	B30RD2	TYPE OF CONTAINER	P	ACTUAL SAMPLE DEPTH	34.7-38.3
MATRIX*	SOIL	NO. OF CONTAINER(S)	1	TELEPHONE NO.	376-3922
DATE/TIME		VOLUME	125ml	DATE/TIME	5-19-15 0853
DATE/TIME		SEE ITEM (1) IN SPECIAL INSTRUCTIONS		DATE/TIME	

374988

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F15-027-015	PAGE 1 OF 1
COLLECTOR	D.W. Bratherton/CHPRC	COMPANY CONTACT	SUMNER, LC	PROJECT COORDINATOR	TODAK, D
SAMPLING LOCATION	C8796, Interval 8 SPT REQ	PROJECT DESIGNATION	100-KE Characterization Boreholes - Soil	SAF NO.	F15-027
ICE CHEST NO.	GWS-343	FIELD LOGBOOK NO.	HNF-N-645-3/4	COA	303581
SHIPPED TO	GEL Laboratories, LLC	OFFSITE PROPERTY NO.	5716	BILL OF LADING/AIR BILL NO.	7738 1332 2444
MATRIX*	A=Air DL=Drum L=Liquid DS=Drum S=Solids L=Liquid O=Oil S=Soil T=Tissue V=Vegetation W=Water X=Other	SELECTION	SELECTION	PRICE CODE	605 JUL 6/11/15
POSSIBLE SAMPLE HAZARDS/REMARKS	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/1ATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION	None	AIR QUALITY	<input type="checkbox"/>
SPECIAL HANDLING AND/OR STORAGE		HOLDING TIME	None	METHOD OF SHIPMENT	FEDERAL EXPRESS
SAMPLE NO.	B30RD2	TYPE OF CONTAINER	P	ACTUAL SAMPLE DEPTH	34.7-38.3
MATRIX*	SOIL	NO. OF CONTAINER(S)	1	TELEPHONE NO.	376-3922
DATE/TIME		VOLUME	125ml	DATE/TIME	5-19-15 0853
DATE/TIME		SEE ITEM (1) IN SPECIAL INSTRUCTIONS		DATE/TIME	

SPECIAL INSTRUCTIONS

TRVL-15-037  
 (1) Moisture Content - D2216; 6010\_METALS\_ICP: COMMON  
 {Chromium}; 7196\_CR6: COMMON; GAMMA\_GS: COMMON; C14\_LSC:  
 COMMON; AMCMISO\_IE\_PRECIP\_AEA: COMMON; I129\_SEP\_LEPS\_GS:  
 COMMON; PUISO\_PLATE\_AEA: COMMON; SRTOT\_SEP\_PRECIP\_GPC:  
 COMMON; TC99\_EIE\_LSC: COMMON; TRITIUM\_DIST\_LSC: COMMON;  
 UISO\_IE\_PRECIP\_AEA: COMMON;

TRVL-15-037

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F15-027-015	PAGE 1 OF 1
COLLECTOR	D.W. Bratherton/CHPRC	COMPANY CONTACT	SUMNER, LC	PROJECT COORDINATOR	TODAK, D
SAMPLING LOCATION	C8796, Interval 8 SPT REQ	PROJECT DESIGNATION	100-KE Characterization Boreholes - Soil	SAF NO.	F15-027
ICE CHEST NO.	GWS-343	FIELD LOGBOOK NO.	HNF-N-645-3/4	COA	303581
SHIPPED TO	GEL Laboratories, LLC	OFFSITE PROPERTY NO.	5716	BILL OF LADING/AIR BILL NO.	7738 1332 2444
MATRIX*	A=Air DL=Drum L=Liquid DS=Drum S=Solids L=Liquid O=Oil S=Soil T=Tissue V=Vegetation W=Water X=Other	SELECTION	SELECTION	PRICE CODE	605 JUL 6/11/15
POSSIBLE SAMPLE HAZARDS/REMARKS	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/1ATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION	None	AIR QUALITY	<input type="checkbox"/>
SPECIAL HANDLING AND/OR STORAGE		HOLDING TIME	None	METHOD OF SHIPMENT	FEDERAL EXPRESS
SAMPLE NO.	B30RD2	TYPE OF CONTAINER	P	ACTUAL SAMPLE DEPTH	34.7-38.3
MATRIX*	SOIL	NO. OF CONTAINER(S)	1	TELEPHONE NO.	376-3922
DATE/TIME		VOLUME	125ml	DATE/TIME	5-19-15 0853
DATE/TIME		SEE ITEM (1) IN SPECIAL INSTRUCTIONS		DATE/TIME	

SIGN/PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
D.W. Bratherton/CHPRC	5-19-15 0930	SSU #2	5-19-15 0930
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
SSU #2	JUN 11 2015 1000	E.L. Kaufer/CHPRC	JUN 11 2015 1000
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
E.L. Kaufer/CHPRC	JUN 11 2015 1130	FEDEX	JUN 11 2015 1130
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
FEDEX	JUN 11 2015 1400	P. Kistler/CHPRC	6-18-15 0910
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
P. Kistler/CHPRC	6-18-15 0910		

TITLE

DATE/TIME  
 DISPOSED BY  
 DATE/TIME

June 29, 2015

**Hammons, Jennifer L**

**From:** Baechler, Michael A  
**Sent:** Thursday, June 11, 2015 9:56 AM  
**To:** Aguilar, Christina M; Aguilar, Juan R; Baechler, Michael A; Briggs, Barbara E; Brotherton, Donald W; Campbell, Karen M; Ellingsworth, Randy D; Hall, Frank M; Hammons, Jennifer L; Hinojosa, Pedro; Patterson, Kevin C; Stiles, Kyle K; Trent, Stephen J; Wall, Lesly D; White, Mitzi A  
**Subject:** FW: Well 199-K-221 (C8796) Sample Shipping Authorization

One more fix, added I-8 split.

*Michael A. Baechler*

*Scientist, CHPRC, Contractor to the Department of Energy  
Soil & Groundwater Remediation Project,  
CHPRC Sample Management Office  
(509) 373-4452 Office  
(509) 539-3117 Cellular*



**From:** Baechler, Michael A  
**Sent:** Thursday, June 11, 2015 9:13 AM  
**To:** Aguilar, Christina M; Aguilar, Juan R; Baechler, Michael A; Briggs, Barbara E; Brotherton, Donald W; Campbell, Karen M; Ellingsworth, Randy D; Hall, Frank M; Hammons, Jennifer L; Hinojosa, Pedro; Patterson, Kevin C; Stiles, Kyle K; Trent, Stephen J; Wall, Lesly D; White, Mitzi A  
**Subject:** FW: Well 199-K-221 (C8796) Sample Shipping Authorization

All,

Please substitute interval 8 below for interval 7 (I-7 not going to GEL). Sorry for the error.

C8796, Interval 8 REQ	40	SOIL	GRAB	---	---	B31F18	---	B30RD0 (RADSCREEN INCLUDED IN MAIN SAMPLE)	---	F15-027-014(222- S) F15-027-103(ESL)
C8796, Interval 8 SPT REQ	40	SOIL	GRAB	---	B30RD2	B31F19	---	---	---	F15-027-015(GEL) F15-027-104(ESL)

Thanks,

**Michael A. Baechler**

*Scientist, CHPRC, Contractor to the Department of Energy  
Soil & Groundwater Remediation Project,  
CHPRC Sample Management Office  
(509) 373-4452 Office  
(509) 539-3117 Cellular*



**From:** Baechler, Michael A  
**Sent:** Thursday, June 11, 2015 9:09 AM  
**To:** Aguilar, Christina M; Aguilar, Juan R; Baechler, Michael A; Briggs, Barbara E; Brotherton, Donald W; Campbell, Karen M; Ellingsworth, Randy D; Hall, Frank M; Hammons, Jennifer L; Hinojosa, Pedro; Patterson, Kevin C; Stiles, Kyle K; Trent, Stephen J; Wall, Lesly D; White, Mitzi A  
**Subject:** Well 199-K-221 (C8796) Sample Shipping Authorization

All,

The samples listed below are authorized for transport as non-regulated material to onsite facilities and offsite laboratories.

LOCATION	EST_INT	MATRX	METHOD	TARL	GEL	ESL	CRCF	222-S	FIELD	COC
C8796, Interval 1 REQ	26	SOIL	GRAB	---	---	B30RB5	---	B30RB6 (RADSCREEN INCLUDED IN MAIN SAMPLE)	---	F15-027- 001(ESL)
						B30RB8(RS)	---			F15-027- 002(222- S)
						B30RB9	---			F15-027- 003(CRCF)
						B30RC6(RS)	---			F15-027- 004(GEL)
						B30RC7	---			F15-027- 097(ESL)
C8796, Interval 2	28	SOIL	GRAB	---	B30RC0	---	B30RC8(RS)	---	---	F15-027- 010(CRCF)
					B30RD3(RS)	---				F15-027- 011(GEL)
					B30RD4	---				F15-027- 012(CRCF)
					B30RD9(RS)	---				F15-027- 013(GEL)
					B30RF0	---				F15-027- 101(ESL)
C8796, Interval 6	36	SOIL	GRAB	---	B30RC0	---	B30RC8(RS)	---	---	F15-027- 012(CRCF)
					B30RD3(RS)	---				F15-027- 013(GEL)
					B30RD4	---				F15-027- 102(ESL)
					B30RD9(RS)	---				F15-027- 016(CRCF)
					B30RF0	---				F15-027- 017(GEL)
C8796, Interval 7	38	SOIL	GRAB	---	B30RC0	---	B30RC8(RS)	---	---	F15-027- 105(ESL)
					B30RD3(RS)	---				F15-027- 022(CRCF)
					B30RD4	---				F15-027- 023(GEL)
					B30RD9(RS)	---				F15-027- 108(ESL)
					B30RF0	---				F15-027- 024(CRCF)
C8796, Interval 9	42	SOIL	GRAB	---	B30RC0	---	B30RC8(RS)	---	---	F15-027- 025(GEL)
					B30RD3(RS)	---				F15-027- 109(ESL)
					B30RD4	---				
					B30RD9(RS)	---				
					B30RF0	---				
C8796, Interval 12	48	SOIL	GRAB	---	B30RC0	---	B30RC8(RS)	---	---	
					B30RD3(RS)	---				
					B30RD4	---				
					B30RD9(RS)	---				
					B30RF0	---				
C8796, Interval 13	50	SOIL	GRAB	---	B30RC0	---	B30RC8(RS)	---	---	
					B30RD3(RS)	---				
					B30RD4	---				
					B30RD9(RS)	---				
					B30RF0	---				

C8796, Interval 14 REQ	52	SOIL	GRAB	---	B30RF5	B30RF3	B30RF4(RS)	---	---	F15-027-026(ESL) F15-027-027(CRCF) F15-027-028(GEL)
C8796, Interval 15	54	SOIL	GRAB	---	B30RF7	B31F25	B30RF6(RS)	---	---	F15-027-029(CRCF) F15-027-030(GEL) F15-027-110(ESL)
C8796, Interval 16 REQ	56	SOIL	GRAB	---	B30RF9	B31F26	B30RF8(RS)	---	---	F15-027-031(CRCF) F15-027-032(GEL) F15-027-111(ESL)
C8796, Interval 16 DUP REQ	56	SOIL	GRAB	---	B30RH0	B31F27	---	---	---	F15-027-033(GEL) F15-027-112(ESL)
C8796, Interval 17 REQ	59	WATER	GRAB	B30T09	B30RP1	---	B30RP0(RS)	---	B30RT4	F15-028-001(CRCF) F15-028-002(GEL) F15-028-025
C8796, Interval 18	58	SOIL	GRAB	---	B30RH2	B31F28	B30RH1(RS)	---	---	F15-027-034(CRCF) F15-027-035(GEL) F15-027-113(ESL)
C8796, Interval 19	60	SOIL	GRAB	---	B30RH4	B31F29	B30RH3(RS)	---	---	F15-027-036(CRCF) F15-027-037(GEL) F15-027-114(ESL)
C8796, Interval 20 REQ	62	SOIL	GRAB	---	B30RH6	B31F30	B30RH5(RS)	---	---	F15-027-038(CRCF) F15-027-039(GEL) F15-027-115(ESL)

C8796, Interval 21 REQ	70	WATER	GRAB	B30RP6	B30RP7	---	B30RP5(RS)	---	B30RT6	F15-028-006(CRCF)
										F15-028-007(GEL)
										F15-028-008(TARL)
										F15-027-040(CRCF)
C8796, Interval 22	66	SOIL	GRAB	---	B30RHB	B31F31	B30RH7(RS)	---	---	F15-027-041(GEL)
										F15-027-116(ESL)
										F15-027-042(CRCF)
C8796, Interval 23	68	SOIL	GRAB	---	B30RJ0	B31F32	B30RH9(RS)	---	---	F15-027-043(GEL)
										F15-027-117(ESL)

Thanks,

*Michael A. Baechler*

*Scientist, CHPRC, Contractor to the Department of Energy  
Soil & Groundwater Remediation Project,  
CHPRC Sample Management Office  
(509) 373-4452 Office  
(509) 539-3117 Cellular*





June 29, 2015
SAMPLE RECEIPT & REVIEW FORM

Client: Received By: Suspected Hazard Information COC/Samples marked as radioactive? Classified Radioactive II or III by RSO? COC/Samples marked containing PCBs? Package, COC, and/or Samples marked as beryllium or asbestos containing? Shipped as a DOT Hazardous? Samples identified as Foreign Soil?

Table with columns: Sample Receipt Criteria, Yes, No, NA, Comments/Qualifiers. Rows include criteria like 'Shipping containers received intact and sealed?', 'Samples requiring cold preservation within (0 ≤ 6 deg. C)?', 'Daily check performed and passed on IR temperature gun?', etc.

Comments (Use Continuation Form if needed):

# **Data Review Qualifier Definitions**

## 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 (Organics only)	Y	Organics		
S	Manual	Reported value determined by the Method of Standard Additions (MSA)	Y	Inorganics		Not coded B/C Rarely performed
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 $\geq 2X$ the MDA and, after corrections, result is $\geq$ 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 $\geq$ 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 $\geq$ 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

## 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 19 June 2015**

<b>State</b>	<b>Certification</b>
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
West Virginia	997404

# Metals Analysis

# Case Narrative

June 29, 2015

Metals

Technical Case Narrative

CH2M Hill Plateau Remediation Company (CPRC)

SDG #: GEL374988

Work Order #: 374988

Sample ID	Client ID
374988001	B30RH4
374988002	B30RF0
374988003	B30RF2
374988004	B30RF5
374988005	B30RB9
374988006	B30RF7
374988007	B30RH8
374988008	B30RJ0
374988009	B30RH6
374988010	B30RF9
374988011	B30RD4
374988012	B30RH0
374988013	B30RH2
374988014	B30RC7
374988015	B30RD2
1203336747	Method Blank (MB)ICP
1203336748	Laboratory Control Sample (LCS)
1203336751	374988001(B30RH4L) Serial Dilution (SD)
1203336749	374988001(B30RH4D) Sample Duplicate (DUP)
1203336750	374988001(B30RH4S) Matrix Spike (MS)

**Sample Analysis**

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

**Method/Analysis Information**

<b>Analytical Batch:</b>	1485543
<b>Prep Batch :</b>	1485542
<b>Standard Operating Procedures:</b>	GL-MA-E-013 REV# 24 and GL-MA-E-009 REV# 25
<b>Analytical Method:</b>	6010_METALS_ICP
<b>Prep Method :</b>	SW846 3050B

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

### System Configuration

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with an ESI SC-FAST introduction, cyclonic spray chamber, and yttrium or scandium internal standard.

### Calibration Information

#### **Instrument Calibration**

All initial calibration requirements have been met for this sample delivery group (SDG).

#### **CRDL/PQL Requirements**

The CRDL/PQL standard recoveries met the referenced advisory control limits.

#### **ICSA/ICSAB Statement**

All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

#### **Continuing Calibration Blanks (CCB) Requirements**

All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

#### **Continuing Calibration Verification (CCV) Requirements**

All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

### Quality Control (QC) Information

#### **Method Blank (MB) Statement**

The MB analyzed with this SDG met the acceptance criteria.

#### **Laboratory Control Sample (LCS) Recovery**

The LCS spike recoveries met the acceptance limits.

#### **Quality Control (QC) Sample Statement**

The following sample was selected as the quality control (QC) sample for this SDG: 374988001 (B30RH4).

#### **Matrix Spike (MS/MSD) Recovery Statement**

The percent recoveries (%R) obtained from the MS/MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes.

#### **Duplicate Relative Percent Difference (RPD) Statement**

The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required reporting limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. The relative percent differences (RPD) between the sample and its duplicate (DUP) were within acceptable limits for all applicable analytes.

#### **Serial Dilution % Difference Statement**

All applicable analytes in the serial dilution (SDILT) demonstrated acceptable correlation to its associated sample and met the established acceptance percent difference criteria.

### Technical Information

#### **Holding Time Specifications**

GEL assigns holding times based on the associated methodology. Holding time is measured by comparison of the date and time of sample collection to the date and time of sample preparation and analysis. Those holding

June 29, 2015

times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

**Preparation/Analytical Method Verification**

All procedures were performed as stated in the SOP. Method SW-846 3050B is not a total digestion technique for most samples. It is a very strong acid digestion that will dissolve almost all elements that could become environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

**Sample Dilutions**

The samples in this SDG did not require dilutions.

**Preparation Information**

The samples in this SDG were not diluted and prepared according to the cited SOP.

**Miscellaneous Information**

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Data Exception (DER) Documentation**

A data exception report was not required for this SDG.

**Additional Comments**

Additional comments were not required for this SDG.

**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.

June 29, 2015

**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: GEL374988 GEL Work Order: 374988

**The Qualifiers in this report are defined as follows:**

- \* Duplicate analysis not within control limits
- D Results are reported from a diluted aliquot of sample.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

**Review/Validation**

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

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

**Signature:** 

**Name:** Nik-Cole Elmore

**Date:** 24 JUN 2015

**Title:** Data Validator

# Sample Data Summary

**METALS**  
**-1-**  
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** GEL374988

**METHOD TYPE:** SW846

**SAMPLE ID:** 374988001

**CLIENT ID:** B30RH4

**CONTRACT:** CPRC0F15027

**MATRIX:**SOIL

**DATE RECEIVED** 12-JUN-15

**LEVEL:** Low    **%SOLIDS:** 97.4

<u>CAS No</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>C</u>	<u>Qual</u>	<u>M*</u>	<u>MDL</u>	<u>DF</u>	<u>Inst ID</u>	<u>Analytical Run</u>
7440-47-3	Chromium	8480	ug/kg			P	135	1	OPTIMA3	061615-1

**\*Analytical Methods:**

**P      SW846 3050B/6010C**

**METALS**  
**-1-**  
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** GEL374988

**METHOD TYPE:** SW846

**SAMPLE ID:** 374988002

**CLIENT ID:** B30RF0

**CONTRACT:** CPRC0F15027

**MATRIX:**SOIL

**DATE RECEIVED** 12-JUN-15

**LEVEL:** Low **%SOLIDS:** 95.7

<u>CAS No</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>C</u>	<u>Qual</u>	<u>M*</u>	<u>MDL</u>	<u>DF</u>	<u>Inst ID</u>	<u>Analytical Run</u>
7440-47-3	Chromium	10100	ug/kg			P	153	1	OPTIMA3	061615-1

**\*Analytical Methods:**

**P SW846 3050B/6010C**

**METALS**  
**-1-**  
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** GEL374988

**METHOD TYPE:** SW846

**SAMPLE ID:** 374988003

**CLIENT ID:** B30RF2

**CONTRACT:** CPRC0F15027

**MATRIX:**SOIL

**DATE RECEIVED** 12-JUN-15

**LEVEL:** Low    **%SOLIDS:** 98.6

<u>CAS No</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>C</u>	<u>Qual</u>	<u>M*</u>	<u>MDL</u>	<u>DF</u>	<u>Inst ID</u>	<u>Analytical Run</u>
7440-47-3	Chromium	22300	ug/kg			P	145	1	OPTIMA3	061615-1

**\*Analytical Methods:**

**P      SW846 3050B/6010C**

**METALS**  
**-1-**  
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** GEL374988

**METHOD TYPE:** SW846

**SAMPLE ID:** 374988004

**CLIENT ID:** B30RF5

**CONTRACT:** CPRC0F15027

**MATRIX:**SOIL

**DATE RECEIVED** 12-JUN-15

**LEVEL:** Low **%SOLIDS:** 97.1

<u>CAS No</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>C</u>	<u>Qual</u>	<u>M*</u>	<u>MDL</u>	<u>DF</u>	<u>Inst ID</u>	<u>Analytical Run</u>
7440-47-3	Chromium	15300	ug/kg			P	145	1	OPTIMA3	061615-1

**\*Analytical Methods:**

**P SW846 3050B/6010C**

**METALS**  
**-1-**  
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** GEL374988

**METHOD TYPE:** SW846

**SAMPLE ID:** 374988005

**CLIENT ID:** B30RB9

**CONTRACT:** CPRC0F15027

**MATRIX:**SOIL

**DATE RECEIVED** 12-JUN-15

**LEVEL:** Low **%SOLIDS:** 98.3

<u>CAS No</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>C</u>	<u>Qual</u>	<u>M*</u>	<u>MDL</u>	<u>DF</u>	<u>Inst ID</u>	<u>Analytical Run</u>
7440-47-3	Chromium	11800	ug/kg			P	151	1	OPTIMA3	061615-1

**\*Analytical Methods:**

**P SW846 3050B/6010C**

**METALS**  
**-1-**  
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** GEL374988

**METHOD TYPE:** SW846

**SAMPLE ID:** 374988006

**CLIENT ID:** B30RF7

**CONTRACT:** CPRC0F15027

**MATRIX:**SOIL

**DATE RECEIVED** 12-JUN-15

**LEVEL:** Low **%SOLIDS:** 96.9

<u>CAS No</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>C</u>	<u>Qual</u>	<u>M*</u>	<u>MDL</u>	<u>DF</u>	<u>Inst ID</u>	<u>Analytical Run</u>
7440-47-3	Chromium	12400	ug/kg			P	149	1	OPTIMA3	061615-1

**\*Analytical Methods:**

**P SW846 3050B/6010C**

METALS  
-1-  
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL374988

METHOD TYPE: SW846

SAMPLE ID: 374988007

CLIENT ID: B30RH8

CONTRACT: CPRC0F15027

MATRIX:SOIL

DATE RECEIVED 12-JUN-15

LEVEL: Low %SOLIDS: 82

<u>CAS No</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>C</u>	<u>Qual</u>	<u>M*</u>	<u>MDL</u>	<u>DF</u>	<u>Inst ID</u>	<u>Analytical Run</u>
7440-47-3	Chromium	12500	ug/kg			P	155	1	OPTIMA3	061615-1

\*Analytical Methods:

P SW846 3050B/6010C

**METALS**  
**-1-**  
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** GEL374988

**METHOD TYPE:** SW846

**SAMPLE ID:** 374988008

**CLIENT ID:** B30RJ0

**CONTRACT:** CPRC0F15027

**MATRIX:**SOIL

**DATE RECEIVED** 12-JUN-15

**LEVEL:** Low **%SOLIDS:** 83

<u>CAS No</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>C</u>	<u>Qual</u>	<u>M*</u>	<u>MDL</u>	<u>DF</u>	<u>Inst ID</u>	<u>Analytical Run</u>
7440-47-3	Chromium	10200	ug/kg			P	157	1	OPTIMA3	061615-1

**\*Analytical Methods:**

**P SW846 3050B/6010C**

**METALS**  
**-1-**  
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** GEL374988

**METHOD TYPE:** SW846

**SAMPLE ID:** 374988009

**CLIENT ID:** B30RH6

**CONTRACT:** CPRC0F15027

**MATRIX:**SOIL

**DATE RECEIVED** 12-JUN-15

**LEVEL:** Low    **%SOLIDS:** 92.9

<u>CAS No</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>C</u>	<u>Qual</u>	<u>M*</u>	<u>MDL</u>	<u>DF</u>	<u>Inst ID</u>	<u>Analytical Run</u>
7440-47-3	Chromium	14400	ug/kg			P	147	1	OPTIMA3	061615-1

**\*Analytical Methods:**

**P      SW846 3050B/6010C**

**METALS**  
**-1-**  
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** GEL374988

**METHOD TYPE:** SW846

**SAMPLE ID:** 374988010

**CLIENT ID:** B30RF9

**CONTRACT:** CPRC0F15027

**MATRIX:**SOIL

**DATE RECEIVED** 12-JUN-15

**LEVEL:** Low **%SOLIDS:** 96.2

<u>CAS No</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>C</u>	<u>Qual</u>	<u>M*</u>	<u>MDL</u>	<u>DF</u>	<u>Inst ID</u>	<u>Analytical Run</u>
7440-47-3	Chromium	11300	ug/kg			P	133	1	OPTIMA3	061615-1

**\*Analytical Methods:**

**P SW846 3050B/6010C**

**METALS**  
-1-  
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** GEL374988

**METHOD TYPE:** SW846

**SAMPLE ID:** 374988011

**CLIENT ID:** B30RD4

**CONTRACT:** CPRC0F15027

**MATRIX:**SOIL

**DATE RECEIVED** 12-JUN-15

**LEVEL:** Low **%SOLIDS:** 98

<u>CAS No</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>C</u>	<u>Qual</u>	<u>M*</u>	<u>MDL</u>	<u>DF</u>	<u>Inst ID</u>	<u>Analytical Run</u>
7440-47-3	Chromium	7350	ug/kg			P	139	1	OPTIMA3	061615-1

**\*Analytical Methods:**

**P SW846 3050B/6010C**

**METALS**  
**-1-**  
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** GEL374988

**METHOD TYPE:** SW846

**SAMPLE ID:** 374988012

**CLIENT ID:** B30RH0

**CONTRACT:** CPRC0F15027

**MATRIX:**SOIL

**DATE RECEIVED** 12-JUN-15

**LEVEL:** Low **%SOLIDS:** 96.1

<u>CAS No</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>C</u>	<u>Qual</u>	<u>M*</u>	<u>MDL</u>	<u>DF</u>	<u>Inst ID</u>	<u>Analytical Run</u>
7440-47-3	Chromium	9670	ug/kg			P	146	1	OPTIMA3	061615-1

**\*Analytical Methods:**

**P SW846 3050B/6010C**

**METALS**  
**-1-**  
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** GEL374988

**METHOD TYPE:** SW846

**SAMPLE ID:** 374988013

**CLIENT ID:** B30RH2

**CONTRACT:** CPRC0F15027

**MATRIX:**SOIL

**DATE RECEIVED** 12-JUN-15

**LEVEL:** Low **%SOLIDS:** 97

<u>CAS No</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>C</u>	<u>Qual</u>	<u>M*</u>	<u>MDL</u>	<u>DF</u>	<u>Inst ID</u>	<u>Analytical Run</u>
7440-47-3	Chromium	9900	ug/kg			P	148	1	OPTIMA3	061615-1

**\*Analytical Methods:**

**P SW846 3050B/6010C**

METALS  
-1-  
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL374988

METHOD TYPE: SW846

SAMPLE ID: 374988014

CLIENT ID: B30RC7

CONTRACT: CPRC0F15027

MATRIX:SOIL

DATE RECEIVED 12-JUN-15

LEVEL: Low %SOLIDS: 98.8

<u>CAS No</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>C</u>	<u>Qual</u>	<u>M*</u>	<u>MDL</u>	<u>DF</u>	<u>Inst ID</u>	<u>Analytical Run</u>
7440-47-3	Chromium	18600	ug/kg			P	137	1	OPTIMA3	061615-1

\*Analytical Methods:

P SW846 3050B/6010C

**METALS**  
**-1-**  
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** GEL374988

**METHOD TYPE:** SW846

**SAMPLE ID:** 374988015

**CLIENT ID:** B30RD2

**CONTRACT:** CPRC0F15027

**MATRIX:**SOIL

**DATE RECEIVED** 12-JUN-15

**LEVEL:** Low **%SOLIDS:** 94.3

<u>CAS No</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>C</u>	<u>Qual</u>	<u>M*</u>	<u>MDL</u>	<u>DF</u>	<u>Inst ID</u>	<u>Analytical Run</u>
7440-47-3	Chromium	8360	ug/kg			P	143	1	OPTIMA3	061615-1

**\*Analytical Methods:**

**P SW846 3050B/6010C**

# Quality Control Summary

June 29, 2015

GEL LABORATORIES LLC

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

QC Summary

Report Date: June 24, 2015

Page 1 of 2

CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 374988

Table with columns: Parmname, NOM, Sample, Qual, QC, Units, RPD/D%, REC%, Range, Anlst, Date, Time. Rows include Metals Analysis-ICP, Batch 1485543, and various Chromium samples with their respective QC values and dates.

Notes:

The Qualifiers in this report are defined as follows:

- \* Duplicate analysis not within control limits
+ Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
C Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.
D Results are reported from a diluted aliquot of sample.
E Reported value is estimated due to interferences. See comment in narrative.
M Duplicate precision not met.
N Spike Sample recovery is outside control limits.
S Reported value determined by the Method of Standard Additions (MSA)
U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
W Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

June 29, 2015

**GEL LABORATORIES LLC**

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

**QC Summary**

Workorder: 374988

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
----------	-----	--------	------	----	-------	--------	------	-------	-------	------	------

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

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

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

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

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

# General Chem Analysis

# Case Narrative

General Chemistry  
Technical Case Narrative  
CH2MHill Plateau Remediation Company (CPRC)  
SDG #: GEL374988  
Work Order #: 374988

**Method/Analysis Information**

**Product:** Hexavalent Chromium  
**Analytical Batch:** 1485953 and 1486623 **Method:** 7196\_CR6: COMMON  
**Prep Batch :** 1485952 and 1486622 **Method:** SW846 3060A

**Sample Analysis**

The following samples were analyzed using the analytical protocol as established in 7196\_CR6 :

<b>Sample ID</b>	<b>Client ID</b>
374988001	B30RH4
374988002	B30RF0
374988003	B30RF2
374988004	B30RF5
374988005	B30RB9
374988006	B30RF7
374988007	B30RH8
374988008	B30RJ0
374988009	B30RH6
374988010	B30RF9
374988011	B30RD4
374988012	B30RH0
374988013	B30RH2
374988014	B30RC7
374988015	B30RD2
1203337917	Method Blank (MB)
1203339237	Method Blank (MB)
1203337918	Laboratory Control Sample (LCS)
1203339238	Laboratory Control Sample (LCS)
1203337921	374988001(B30RH4) Sample Duplicate (DUP)
1203339240	374988010(B30RF9) Sample Duplicate (DUP)
1203337925	374988001(B30RH4) Matrix Spike (MS)
1203339242	374988010(B30RF9) Matrix Spike (MS)
1203337929	374988001(B30RH4) Matrix Spike Duplicate (MSD)
1203339246	374988010(B30RF9) Matrix Spike Duplicate (MSD)
1203337919	Insoluble Lab Control Sample (ILCS)
1203339239	Insoluble Lab Control Sample (ILCS)

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-GC-E-044 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**Calibration Information**

The Spectrometric analysis was performed on a Spectronic 20D+ Digital Spectrophotometer.

**Initial Calibration**

All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**

The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**

The MBs Batch 1486623 analyzed with this SDG met the acceptance criteria. In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data.

**Laboratory Control Sample (LCS) Recovery**

The LCS spike recoveries met the acceptance limits.

**Quality Control (QC) Designation**

Samples 374988001 (B30RH4)- Batch 1485953 and 374988010 (B30RF9)- Batch 1486623 were selected for QC analysis.

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**

The MS/PS recoveries for this sample set were within the required acceptance limits.

**MS/MSD Relative Percent Difference (RPD) Statement**

The RPDs between the spike and spike duplicate met the acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**

The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**

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

Sample	Analyte	Value
374988005 (B30RB9)		Received 12-JUN-15, out of holding 11-JUN-15

**Sample Dilutions**

The samples in this SDG did not require dilutions.

**Sample Re-analysis**

The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**

A data exception report (DER) 1421767 was generated for sample 374988005 (B30RB9)- Batch 1485953 in this SDG/batch.

**Additional Comments**

Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:  
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**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.

June 29, 2015

**GEL LABORATORIES LLC**

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**Qualifier Definition Report  
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL374988 GEL Work Order: 374988

**The Qualifiers in this report are defined as follows:**

- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- C Target analyte was detected in the sample and the associated blank. The associated blank concentration is  $\geq$  EQL or is  $> 5\%$  of the measured concentration and/or decision level for associated samples.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

**Review/Validation**

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

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

**Signature:** 

**Name:** Thomas Lewis

**Date:** 24 JUN 2015

**Title:** Data Validator

# Sample Data Summary

~~June 29, 2015~~  
**GEL LABORATORIES LLC**

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**Certificate of Analysis**

Report Date: June 24, 2015

Company : CH2MHill Plateau Remediation Company  
Address : MSIN R3-50 CHPRC  
PO Box 1600  
Richland, Washington 99352  
Contact: Mr. Scot Fitzgerald  
Project: CHPRC SAF F15-027

---

Client Sample ID:	B30RH4	Project:	CPRC0F15027
Sample ID:	374988001	Client ID:	CPRC001
Matrix:	SOIL		
Collect Date:	08-JUN-15 12:55		
Receive Date:	12-JUN-15		
Collector:	Client		
Moisture:	2.57%		

---

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium		2040	123	410	ug/Kg	1	SXC5	06/17/15	1359	1485953	1

The following Prep Methods were performed:

---

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	06/16/15	1453	1485952

The following Analytical Methods were performed:

---

Method	Description	Analyst Comments
1	7196_CR6	

**Notes:**



~~June 29, 2015~~  
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**Certificate of Analysis**

Report Date: June 24, 2015

Company : CH2MHill Plateau Remediation Company  
Address : MSIN R3-50 CHPRC  
PO Box 1600  
Richland, Washington 99352  
Contact: Mr. Scot Fitzgerald  
Project: CHPRC SAF F15-027

---

Client Sample ID:	B30RF2	Project:	CPRC0F15027
Sample ID:	374988003	Client ID:	CPRC001
Matrix:	SOIL		
Collect Date:	08-JUN-15 09:36		
Receive Date:	12-JUN-15		
Collector:	Client		
Moisture:	1.45%		

---

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium		763	121	403	ug/Kg	1	SXC5	06/17/15	1411	1485953	1

The following Prep Methods were performed:

---

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	06/16/15	1500	1485952

The following Analytical Methods were performed:

---

Method	Description	Analyst Comments
1	7196_CR6	

**Notes:**

~~June 29, 2015~~  
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**Certificate of Analysis**

Report Date: June 24, 2015

Company : CH2MHill Plateau Remediation Company  
Address : MSIN R3-50 CHPRC  
          PO Box 1600  
          Richland, Washington 99352  
Contact: Mr. Scot Fitzgerald  
Project: CHPRC SAF F15-027

---

Client Sample ID:	B30RF5	Project:	CPRC0F15027
Sample ID:	374988004	Client ID:	CPRC001
Matrix:	SOIL		
Collect Date:	08-JUN-15 09:49		
Receive Date:	12-JUN-15		
Collector:	Client		
Moisture:	2.88%		

---

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium	U	123	123	411	ug/Kg	1	SXC5	06/17/15	1412	1485953	1

The following Prep Methods were performed:

---

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	06/16/15	1501	1485952

The following Analytical Methods were performed:

---

Method	Description	Analyst Comments
1	7196_CR6	

**Notes:**

~~June 29, 2015~~  
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**Certificate of Analysis**

Report Date: June 24, 2015

Company : CH2MHill Plateau Remediation Company  
 Address : MSIN R3-50 CHPRC  
 PO Box 1600  
 Richland, Washington 99352  
 Contact: Mr. Scot Fitzgerald  
 Project: CHPRC SAF F15-027

---

Client Sample ID: B30RB9	Project: CPRC0F15027
Sample ID: 374988005	Client ID: CPRC001
Matrix: SOIL	
Collect Date: 12-MAY-15 08:08	
Receive Date: 12-JUN-15	
Collector: Client	
Moisture: 1.67%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium		547	120	401	ug/Kg	1	SXC5	06/17/15	1412	1485953	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	06/16/15	1502	1485952

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	7196_CR6	

**Notes:**

~~June 29, 2015~~  
**GEL LABORATORIES LLC**

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**Certificate of Analysis**

Report Date: June 24, 2015

Company : CH2MHill Plateau Remediation Company  
Address : MSIN R3-50 CHPRC  
PO Box 1600  
Richland, Washington 99352  
Contact: Mr. Scot Fitzgerald  
Project: CHPRC SAF F15-027

---

Client Sample ID:	B30RF7	Project:	CPRC0F15027
Sample ID:	374988006	Client ID:	CPRC001
Matrix:	SOIL		
Collect Date:	08-JUN-15 10:04		
Receive Date:	12-JUN-15		
Collector:	Client		
Moisture:	3.13%		

---

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium	U	123	123	410	ug/Kg	1	SXC5	06/17/15	1413	1485953	1

The following Prep Methods were performed:

---

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	06/16/15	1503	1485952

The following Analytical Methods were performed:

---

Method	Description	Analyst Comments
1	7196_CR6	

**Notes:**

~~June 29, 2015~~  
**GEL LABORATORIES LLC**

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**Certificate of Analysis**

Report Date: June 24, 2015

Company : CH2MHill Plateau Remediation Company  
Address : MSIN R3-50 CHPRC  
          PO Box 1600  
          Richland, Washington 99352  
Contact: Mr. Scot Fitzgerald  
Project: CHPRC SAF F15-027

---

Client Sample ID: B30RH8	Project: CPRC0F15027
Sample ID: 374988007	Client ID: CPRC001
Matrix: SOIL	
Collect Date: 08-JUN-15 13:22	
Receive Date: 12-JUN-15	
Collector: Client	
Moisture: 18.2%	

---

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium		519	136	452	ug/Kg	1	SXC5	06/17/15	1413	1485953	1

The following Prep Methods were performed:

---

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	06/16/15	1504	1485952

The following Analytical Methods were performed:

---

Method	Description	Analyst Comments
1	7196_CR6	

**Notes:**

~~June 29, 2015~~  
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**Certificate of Analysis**

Report Date: June 24, 2015

Company : CH2MHill Plateau Remediation Company  
Address : MSIN R3-50 CHPRC  
PO Box 1600  
Richland, Washington 99352  
Contact: Mr. Scot Fitzgerald  
Project: CHPRC SAF F15-027

---

Client Sample ID:	B30RJ0	Project:	CPRC0F15027
Sample ID:	374988008	Client ID:	CPRC001
Matrix:	SOIL		
Collect Date:	08-JUN-15 13:40		
Receive Date:	12-JUN-15		
Collector:	Client		
Moisture:	17.1%		

---

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium	U	139	139	464	ug/Kg	1	SXC5	06/17/15	1414	1485953	1

The following Prep Methods were performed:

---

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	06/16/15	1505	1485952

The following Analytical Methods were performed:

---

Method	Description	Analyst Comments
1	7196_CR6	

**Notes:**



~~June 29, 2015~~  
**GEL LABORATORIES LLC**

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**Certificate of Analysis**

Report Date: June 24, 2015

Company : CH2MHill Plateau Remediation Company  
Address : MSIN R3-50 CHPRC  
          PO Box 1600  
          Richland, Washington 99352  
Contact: Mr. Scot Fitzgerald  
Project: CHPRC SAF F15-027

---

Client Sample ID:	B30RF9	Project:	CPRC0F15027
Sample ID:	374988010	Client ID:	CPRC001
Matrix:	SOIL		
Collect Date:	08-JUN-15 10:14		
Receive Date:	12-JUN-15		
Collector:	Client		
Moisture:	3.8%		

---

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium	BC	342	124	413	ug/Kg	1	SXC5	06/18/15	1444	1486623	1

The following Prep Methods were performed:

---

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	06/17/15	1531	1486622

The following Analytical Methods were performed:

---

Method	Description	Analyst Comments
1	7196_CR6	

**Notes:**

~~June 29, 2015~~  
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**Certificate of Analysis**

Report Date: June 24, 2015

Company : CH2MHill Plateau Remediation Company  
Address : MSIN R3-50 CHPRC  
          PO Box 1600  
          Richland, Washington 99352  
Contact: Mr. Scot Fitzgerald  
Project: CHPRC SAF F15-027

---

Client Sample ID: B30RD4	Project: CPRC0F15027
Sample ID: 374988011	Client ID: CPRC001
Matrix: SOIL	
Collect Date: 19-MAY-15 09:13	
Receive Date: 12-JUN-15	
Collector: Client	
Moisture: 1.96%	

---

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium	C	471	122	406	ug/Kg	1	SXC5	06/18/15	1449	1486623	1

The following Prep Methods were performed:

---

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	06/17/15	1607	1486622

The following Analytical Methods were performed:

---

Method	Description	Analyst Comments
1	7196_CR6	

**Notes:**

~~June 29, 2015~~  
**GEL LABORATORIES LLC**

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**Certificate of Analysis**

Report Date: June 24, 2015

Company : CH2MHill Plateau Remediation Company  
Address : MSIN R3-50 CHPRC  
PO Box 1600  
Richland, Washington 99352  
Contact: Mr. Scot Fitzgerald  
Project: CHPRC SAF F15-027

---

Client Sample ID:	B30RH0	Project:	CPRC0F15027
Sample ID:	374988012	Client ID:	CPRC001
Matrix:	SOIL		
Collect Date:	08-JUN-15 10:14		
Receive Date:	12-JUN-15		
Collector:	Client		
Moisture:	3.92%		

---

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium	C	968	123	408	ug/Kg	1	SXC5	06/18/15	1451	1486623	1

The following Prep Methods were performed:

---

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	06/17/15	1608	1486622

The following Analytical Methods were performed:

---

Method	Description	Analyst Comments
1	7196_CR6	

**Notes:**



~~June 29, 2015~~  
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**Certificate of Analysis**

Report Date: June 24, 2015

Company : CH2MHill Plateau Remediation Company  
 Address : MSIN R3-50 CHPRC  
 PO Box 1600  
 Richland, Washington 99352  
 Contact: Mr. Scot Fitzgerald  
 Project: CHPRC SAF F15-027

---

Client Sample ID: B30RC7	Project: CPRC0F15027
Sample ID: 374988014	Client ID: CPRC001
Matrix: SOIL	
Collect Date: 19-MAY-15 08:20	
Receive Date: 12-JUN-15	
Collector: Client	
Moisture: 1.22%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium	C	465	120	401	ug/Kg	1	SXC5	06/18/15	1453	1486623	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	06/17/15	1611	1486622

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	7196_CR6	

**Notes:**

~~June 29, 2015~~  
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**Certificate of Analysis**

Report Date: June 24, 2015

Company : CH2MHill Plateau Remediation Company  
Address : MSIN R3-50 CHPRC  
          PO Box 1600  
          Richland, Washington 99352  
Contact: Mr. Scot Fitzgerald  
Project: CHPRC SAF F15-027

---

Client Sample ID:	B30RD2	Project:	CPRC0F15027
Sample ID:	374988015	Client ID:	CPRC001
Matrix:	SOIL		
Collect Date:	19-MAY-15 08:53		
Receive Date:	12-JUN-15		
Collector:	Client		
Moisture:	5.69%		

---

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium	BC	209	126	418	ug/Kg	1	SXC5	06/18/15	1453	1486623	1

The following Prep Methods were performed:

---

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	06/17/15	1612	1486622

The following Analytical Methods were performed:

---

Method	Description	Analyst Comments
1	7196_CR6	

**Notes:**

# Quality Control Summary

June 29, 2015

GEL LABORATORIES LLC

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

QC Summary

Report Date: June 24, 2015

Page 1 of 2

CH2MHill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 374988

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Spectrometric Analysis</b>											
Batch	1485953										
QC1203337921	374988001	DUP									
Hexavalent Chromium		2040		2080	ug/Kg	1.97 ^		(+/-409)	SXC5	06/17/15	13:59
QC1203337919	ILCS										
Hexavalent Chromium	8000			6770	ug/Kg		84.6	(80%-120%)		06/17/15	13:52
QC1203337918	LCS										
Hexavalent Chromium	3990			3820	ug/Kg		95.7	(80%-120%)		06/17/15	13:52
QC1203337917	MB										
Hexavalent Chromium			U	120	ug/Kg					06/17/15	13:52
QC1203337925	374988001	MS									
Hexavalent Chromium	4090	2040		6230	ug/Kg		102	(75%-125%)		06/17/15	14:00
QC1203337929	374988001	MSD									
Hexavalent Chromium	4030	2040		6090	ug/Kg	2.18	100	(0%-30%)		06/17/15	14:01
Batch	1486623										
QC1203339240	374988010	DUP									
Hexavalent Chromium		BC	342 B	297	ug/Kg	14.1 ^		(+/-414)	SXC5	06/18/15	14:45
QC1203339239	ILCS										
Hexavalent Chromium	7970			7790	ug/Kg		97.7	(80%-120%)		06/18/15	14:43
QC1203339238	LCS										
Hexavalent Chromium	3980			4180	ug/Kg		105	(80%-120%)		06/18/15	14:43
QC1203339237	MB										
Hexavalent Chromium			B	155	ug/Kg					06/18/15	14:43
QC1203339242	374988010	MS									
Hexavalent Chromium	4080	BC	342	4870	ug/Kg		111	(75%-125%)		06/18/15	14:46
QC1203339246	374988010	MSD									
Hexavalent Chromium	4140	BC	342	5040	ug/Kg	3.33	113	(0%-30%)		06/18/15	14:47

Notes:

The Qualifiers in this report are defined as follows:

June 29, 2015

# GEL LABORATORIES LLC

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## QC Summary

Workorder: 374988

Page 2 of 2

<u>Parmname</u>	<u>NOM</u>	<u>Sample</u>	<u>Qual</u>	<u>QC</u>	<u>Units</u>	<u>RPD%</u>	<u>REC%</u>	<u>Range</u>	<u>Anlst</u>	<u>Date</u>	<u>Time</u>
-----------------	------------	---------------	-------------	-----------	--------------	-------------	-------------	--------------	--------------	-------------	-------------

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

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

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

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

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

# Miscellaneous

**DATA EXCEPTION REPORT**

<b>Mo.Day Yr.</b> 17-JUN-15	<b>Division:</b> Industrial	<b>Quality Criteria:</b> Specifications	<b>Type:</b> Process
<b>Instrument Type:</b> VIS SPECTROMETER	<b>Test / Method:</b> SW846 7196A	<b>Matrix Type:</b> Solid	<b>Client Code:</b> CPRC, OLAB
<b>Batch ID:</b> 1485953	<b>Sample Numbers:</b> See Below		
<b>Potentially affected work order(s)(SDG): 374988(GEL374988)</b>			
<b>Application Issues:</b> Sample received out of holding			
<b>Specification and Requirements Exception Description:</b>		<b>DER Disposition:</b>	
1. Sample received out of holding:  374988 005		1. Sample (See Below) was received by the laboratory outside of the method specified holding time. The data is qualified. 374988005 (B30RB9) [Received 12-JUN-15, out of holding 11-JUN-15].	

**Originator's Name:**

Sarah Carson 17-JUN-15

**Data Validator/Group Leader:**

Elzbieta Szulc 17-JUN-15

# Radiological Analysis

**June 29, 2015**  
**Radiochemistry**  
**Technical Case Narrative**  
**CH2MHill Plateau Remediation Company (CPRC)**  
**SDG #: GEL374988**  
**Work Order #: 374988**

**Method/Analysis Information**

**Product:** Alphaspec Am241 Solid  
**Analytical Method:** AMCMISO\_EIE\_PREC\_AEA  
**Prep Method:** ASTM D 2216 (Modified)  
**Analytical Batch Number:** 1485928  
**Prep Batch Number:** 1485598

<b>Sample ID</b>	<b>Client ID</b>
374988001	B30RH4
374988002	B30RF0
374988003	B30RF2
374988004	B30RF5
374988005	B30RB9
374988006	B30RF7
374988007	B30RH8
374988008	B30RJ0
374988009	B30RH6
374988010	B30RF9
374988011	B30RD4
374988012	B30RH0
374988013	B30RH2
374988014	B30RC7
374988015	B30RD2
1203337864	Method Blank (MB)
1203337866	Laboratory Control Sample (LCS)
1203337865	374988001(B30RH4) 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: 374988001 (B30RH4).

**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**

Manual integration of alpha spectroscopy spectra 1203337866 (LCS) was performed to fully separate counts in Regions of Interest which would have been biased.

**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**

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**Product:** Alphaspec Pu, Solid  
Analytical Method: PUIISO\_PLATE\_AEA  
Prep Method: ASTM D 2216 (Modified)  
Analytical Batch Number: 1485930  
Prep Batch Number: 1485598

<b>Sample ID</b>	<b>Client ID</b>
374988001	B30RH4
374988002	B30RF0
374988003	B30RF2
374988004	B30RF5
374988005	B30RB9
374988006	B30RF7
374988007	B30RH8
374988008	B30RJ0
374988009	B30RH6
374988010	B30RF9
374988011	B30RD4
374988012	B30RH0
374988013	B30RH2
374988014	B30RC7
374988015	B30RD2
1203337867	Method Blank (MB)
1203337869	Laboratory Control Sample (LCS)
1203337868	374988001(B30RH4) 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: 374988001 (B30RH4).

**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 374988003 (B30RF2) was recounted due to high MDC. The recount is reported. Samples 1203337868 (B30RH4DUP) and 374988001 (B30RH4) were recounted due to high relative percent difference/relative error ratio. The recounts are reported. Sample 374988005 (B30RB9) was recounted due to poor resolution. The recount is reported. Sample 374988009 (B30RH6) was recounted to verify results. The recount is being 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**

<b>Product:</b>	<b>Alphaspec U, Solid</b>
Analytical Method:	UIISO_IE_PRECIP_AEA
Prep Method:	ASTM D 2216 (Modified)
Analytical Batch Number:	1485931
Prep Batch Number:	1485598

<b>Sample ID</b>	<b>Client ID</b>
374988001	B30RH4
374988002	B30RF0
374988003	B30RF2
374988004	B30RF5
374988005	B30RB9
374988006	B30RF7
374988007	B30RH8
374988008	B30RJ0
374988009	B30RH6
374988010	B30RF9
374988011	B30RD4
374988012	B30RH0
374988013	B30RH2
374988014	B30RC7
374988015	B30RD2
1203337870	Method Blank (MB)
1203337872	Laboratory Control Sample (LCS)
1203337871	374988001(B30RH4) 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: 374988001 (B30RH4).

**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 374988012 (B30RH0) was recounted due to a peak shift. 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.

**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**

<b>Product:</b>	<b>Dry Weight-Percent Moisture</b>
Analytical Method:	ASTM D 2216 (Modified)
Analytical Batch Number:	1485598

<b>Sample ID</b>	<b>Client ID</b>
374988001	B30RH4
374988002	B30RF0
374988003	B30RF2
374988004	B30RF5
374988005	B30RB9
374988006	B30RF7
374988007	B30RH8
374988008	B30RJ0
374988009	B30RH6
374988010	B30RF9

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374988011 B30RD4  
374988012 B30RH0  
374988013 B30RH2  
374988014 B30RC7  
374988015 B30RD2  
1203336898 374988001(B30RH4) 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-OA-E-020 REV# 10 and GL-RAD-A-021 REV# 20.

**Calibration Information:**

**Quality Control (QC) Information:**

**Designated QC**

The following sample was used for QC: 374988001 (B30RH4).

**Technical Information:**

**Holding Time**

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

**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.

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier Information**

Manual qualifiers were not required.

**Method/Analysis Information**

**Product:** Gamma Cs137,Co60,Eu152,Eu154,E155  
**Analytical Method:** GAMMA\_GS  
**Prep Method:** ASTM D 2216 (Modified)  
**Analytical Batch Number:** 1485712  
**Prep Batch Number:** 1485598

<b>Sample ID</b>	<b>Client ID</b>
374988001	B30RH4
374988002	B30RF0
374988003	B30RF2
374988004	B30RF5
374988005	B30RB9
374988006	B30RF7
374988007	B30RH8
374988008	B30RJ0
374988009	B30RH6
374988010	B30RF9
374988011	B30RD4
374988012	B30RH0
374988013	B30RH2
374988014	B30RC7
374988015	B30RD2
1203337249	Method Blank (MB)
1203337251	Laboratory Control Sample (LCS)
1203337250	374988001(B30RH4) 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: 374988001 (B30RH4).

**QC Information**

All of the QC samples meet the required acceptance limits with the following exceptions: Refer to Data Exception Report (DER).

**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. The following DER was generated for this SDG: DER 1423790 was generated due to RDL less than MDA. The following RDLs in sample 374988001 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155. The following RDLs in sample 374988002 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155. The following RDLs in sample 374988003 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155. The following RDLs in sample 374988004 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155. The following RDLs in sample 374988005 were not achieved: Co-60, Eu-154 and Eu-155. The following RDLs in sample 374988006 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155. The following RDLs in sample 374988007 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155. The following RDLs in sample 374988008 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155. The following RDLs in sample 374988009 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155. The following RDLs in sample 374988010 were not achieved: Cs-137, Co-60, Eu-152, Eu-154 and Eu-155. The following RDLs in sample 374988011 were not achieved: Cs-137, Co-60, Eu-152, Eu-154 and Eu-155. The following RDLs in sample 374988012 were not achieved: Cs-137, Co-60, Eu-152, Eu-154 and Eu-155. The following RDLs in sample 374988013 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155. The following RDLs in sample 374988014 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155. The following RDLs in sample 374988015 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155. The following RDLs in MB 1203337249 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155. The following RDLs in DUP 1203337250 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155. Required detection limits were not met due to limited sample volume. Reporting results.

**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**

<b>Product:</b>	<b>Gamma I129, Solid</b>
Analytical Method:	I129LL_SEP_LEPS_GS
Analytical Batch Number:	1485720

<b>Sample ID</b>	<b>Client ID</b>
374988001	B30RH4
374988002	B30RF0
374988003	B30RF2
374988004	B30RF5
374988005	B30RB9
374988006	B30RF7
374988007	B30RH8
374988008	B30RJ0
374988009	B30RH6
374988010	B30RF9
374988011	B30RD4
374988012	B30RH0
374988013	B30RH2
374988014	B30RC7
374988015	B30RD2
1203337266	Method Blank (MB)
1203337269	Laboratory Control Sample (LCS)
1203337267	374988001(B30RH4) Sample Duplicate (DUP)
1203337268	374988001(B30RH4) 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: 374988001 (B30RH4).

**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:** GFPC, Sr90, solid  
**Analytical Method:** SRISO\_SEP\_PRECIP\_GPC  
**Prep Method:** ASTM D 2216 (Modified)  
**Analytical Batch Number:** 1485858  
**Prep Batch Number:** 1485598

<b>Sample ID</b>	<b>Client ID</b>
374988001	B30RH4
374988002	B30RF0
374988003	B30RF2
374988004	B30RF5
374988005	B30RB9
374988006	B30RF7
374988007	B30RH8
374988008	B30RJ0
374988009	B30RH6
374988010	B30RF9

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374988011	B30RD4
374988012	B30RH0
374988013	B30RH2
374988014	B30RC7
374988015	B30RD2
1203337670	Method Blank (MB)
1203337672	Laboratory Control Sample (LCS)
1203337671	374988005(B30RB9) 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: 374988005 (B30RB9).

##### **QC Information**

All of the QC samples meet the required acceptance limits with the following exceptions: The sample and the duplicate, 1203337671 (B30RB9DUP) and 374988005 (B30RB9), did not meet the relative percent difference requirement; however, they do meet the relative error ratio requirement with a value of 1.75.

#### **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 374988008 (B30RJ0) was recounted due to results more negative than the three sigma TPU. The second count is reported. Samples 1203337671 (B30RB9DUP), 374988001 (B30RH4), 374988002 (B30RF0),

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374988003 (B30RF2), 374988004 (B30RF5), 374988005 (B30RB9), 374988006 (B30RF7), 374988009 (B30RH6), 374988010 (B30RF9), 374988011 (B30RD4), 374988012 (B30RH0), 374988013 (B30RH2), 374988014 (B30RC7) and 374988015 (B30RD2) were verified by recounting at least five days from the separation date. 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:** Liquid Scint Te99, Solid  
Analytical Method: TC99\_EIE\_LSC  
Analytical Batch Number: 1485659

<b>Sample ID</b>	<b>Client ID</b>
374988001	B30RH4
374988002	B30RF0
374988003	B30RF2
374988004	B30RF5
374988005	B30RB9
374988006	B30RF7
374988007	B30RH8
374988008	B30RJ0
374988009	B30RH6
374988010	B30RF9
374988011	B30RD4
374988012	B30RH0
374988013	B30RH2
374988014	B30RC7
374988015	B30RD2
1203337093	Method Blank (MB)
1203337095	Laboratory Control Sample (LCS)
1203337094	374988001(B30RH4) 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: 374988001 (B30RH4).

**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 1203337095 (LCS) was recounted due to low recovery. 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:** Liquid Scint C14, Solid  
**Analytical Method:** C14\_LSC  
**Analytical Batch Number:** 1486494

<b>Sample ID</b>	<b>Client ID</b>
374988001	B30RH4
374988002	B30RF0
374988003	B30RF2
374988004	B30RF5
374988005	B30RB9
374988006	B30RF7
374988007	B30RH8
374988008	B30RJ0
374988009	B30RH6
374988010	B30RF9
374988011	B30RD4
374988012	B30RH0
374988013	B30RH2
374988014	B30RC7
374988015	B30RD2
1203338831	Method Blank (MB)
1203338834	Laboratory Control Sample (LCS)
1203338832	374988001(B30RH4) Sample Duplicate (DUP)
1203338833	374988001(B30RH4) 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.

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**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: 374988001 (B30RH4).

**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 1203338832 (B30RH4DUP), 374988001 (B30RH4), 374988003 (B30RF2), 374988005 (B30RB9), 374988006 (B30RF7), 374988012 (B30RH0), 374988013 (B30RH2), 374988014 (B30RC7) and 374988015 (B30RD2) were recounted due to the quench number being outside the calibration range. 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**

<b>Product:</b>	<b>LSC, Tritium Dist, Solid</b>
Analytical Method:	TRITIUM_DIST_LSC
Analytical Batch Number:	1486509

<b>Sample ID</b>	<b>Client ID</b>
374988001	B30RH4
374988002	B30RF0
374988003	B30RF2
374988004	B30RF5
374988005	B30RB9
374988006	B30RF7
374988007	B30RH8
374988008	B30RJ0
374988009	B30RH6
374988010	B30RF9
374988011	B30RD4
374988012	B30RH0
374988013	B30RH2
374988014	B30RC7
374988015	B30RD2
1203338894	Method Blank (MB)
1203338897	Laboratory Control Sample (LCS)
1203338895	374988001(B30RH4) Sample Duplicate (DUP)
1203338896	374988001(B30RH4) 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: 374988001 (B30RH4).

**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 374988002 (B30RF0), 374988003 (B30RF2), 374988004 (B30RF5), 374988006 (B30RF7), 374988009 (B30RH6), 374988010 (B30RF9), 374988012 (B30RH0) and 374988013 (B30RH2) were recounted to verify sample results. The recount results are similar to the original results. Original results 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.

**Certification Statement**

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

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**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: GEL374988 GEL Work Order: 374988

**The Qualifiers in this report are defined as follows:**

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

**Review/Validation**

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

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

**Signature:** 

**Name:** Kate Gellatly

**Date:** 29 JUN 2015

**Title:** Analyst I

**DATA EXCEPTION REPORT**

<b>Mo.Day Yr.</b> 23-JUN-15	<b>Division:</b> Radiochemistry	<b>Quality Criteria:</b> Specifications	<b>Type:</b> Process
<b>Instrument Type:</b> GAMMA SPECTROMETER	<b>Test / Method:</b> DOE HASL 300, 4.5.2.3/Ga-01-R	<b>Matrix Type:</b> Solid	<b>Client Code:</b> CPRC
<b>Batch ID:</b> 1485712	<b>Sample Numbers:</b> See Below		

**Potentially affected work order(s)(SDG): 374988(GEL374988)**

**Application Issues:**  
RDL less than MDA

<b>Specification and Requirements Exception Description:</b>	<b>DER Disposition:</b>
<p>The following RDLs in sample 374988001 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155.                  The following RDLs in sample 374988002 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155.                  The following RDLs in sample 374988003 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155.                  The following RDLs in sample 374988004 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155.                  The following RDLs in sample 374988005 were not achieved: Co-60, Eu-154 and Eu-155.                  The following RDLs in sample 374988006 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155.                  The following RDLs in sample 374988007 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155.                  The following RDLs in sample 374988008 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155.                  The following RDLs in sample 374988009 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155.                  The following RDLs in sample 374988010 were not achieved: Cs-137, Co-60, Eu-152, Eu-154 and Eu-155.                  The following RDLs in sample 374988011 were not achieved: Cs-137, Co-60, Eu-152, Eu-154 and Eu-155.                  The following RDLs in sample 374988012 were not achieved: Cs-137, Co-60, Eu-152, Eu-154 and Eu-155.                  The following RDLs in sample 374988013 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155.                  The following RDLs in sample 374988014 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155.                  The following RDLs in sample 374988015 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155.                  The following RDLs in MB 1203337249 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155.                  The following RDLs in DUP 1203337250 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155.</p>	<p>Required detection limits were not met due to limited sample volume. Reporting results.</p>

**Originator's Name:**  
Spencer Collins      23-JUN-15

**Data Validator/Group Leader:**  
Shenise Gerideau      25-JUN-15

# Sample Data Summary

June 29, 2015  
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Certificate of Analysis  
Sample Summary

SDG Number: GEL374988	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 374988001	Date Collected: 06/08/2015 12:55	Matrix: SOIL
	Date Received: 06/12/2015 09:10	%Moisture: 2.6
Client ID: B30RH4	Method: AMCMISO_EIE_PREC_AEA	Prep Basis: Dry Weight
Batch ID: 1485928	Analyst: MXS2	SOP Ref: GL-RAD-A-011
Run Date: 06/20/2015 16:19	Aliquot: 0.106 g	Instrument: 1236
Data File: S0374988001_AM.1A.gcnf	Prep Method: DOE EML HASL-300, Am-05	Count Time: 240 min
Prep Batch: 1485928		Prep SOP Ref: GL-RAD-A-021
Prep Date: 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.112	pCi/g	+/-0.623	0.624	1.19	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	6.52	20.2	pCi/g	32.3	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988001	<b>Date Collected:</b> 06/08/2015 12:55	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2.6
<b>Client ID:</b> B30RH4	<b>Method:</b> PUIISO_PLATE_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485930	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/23/2015 15:20	<b>Aliquot:</b> 0.106 g	<b>Instrument:</b> 1083
<b>Data File:</b> S0374988001_PU.2A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Pu-11-	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485930		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I3981-16-3	Plutonium-238	U	-0.0389	pCi/g	+/-0.229	0.229	0.544	1.00
OER-100-70	Plutonium-239/240		3.28	pCi/g	+/-0.884	0.976	0.182	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	15.3	18.6	pCi/g	82.4	(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).

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988001	<b>Date Collected:</b> 06/08/2015 12:55	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2.6
<b>Client ID:</b> B30RH4	<b>Method:</b> UIISO_IE_PRECIP_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485931	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:18	<b>Aliquot:</b> 0.106 g	<b>Instrument:</b> 1127
<b>Data File:</b> S0374988001_UU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, U-02-R	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485931		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 13968-55-3/139	Uranium-233/234	U	0.257	pCi/g	+/-0.312	0.315	0.418	1.00
15117-96-1/13982	Uranium-235/236	U	0.00	pCi/g	+/-0.158	0.159	0.235	1.00
7440-61-1	Uranium-238		0.477	pCi/g	+/-0.377	0.384	0.352	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	21.2	20.0	pCi/g	106	(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).

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988001	<b>Date Collected:</b> 06/08/2015 12:55	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2.6
<b>Client ID:</b> B30RH4	<b>Method:</b> SRISO_SEP_PRECIP_GPC	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485858	<b>Analyst:</b> KSD1	<b>SOP Ref:</b> GL-RAD-A-004
<b>Run Date:</b> 06/29/2015 06:59	<b>Aliquot:</b> 1.013 g	<b>Instrument:</b> PIC4C
<b>Data File:</b> S1485858r2.xls	<b>Prep Method:</b> EPA 905.0 Modified/DOE RP5	<b>Count Time:</b> 60 min
<b>Prep Batch:</b> 1485858		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/19/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90		15.9	pCi/g	+/-0.843	2.96	0.254	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	6.80	8.10	mg	84.0	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

SDG Number: GEL374988  
Lab Sample ID: 374988001  
  
Client ID: B30RH4  
Batch ID: 1485712  
Run Date: 06/16/2015 06:59  
Data File: G374988001.CNF;2  
Prep Batch: 1485712  
Prep Date: 06/15/2015 00:00

Client: CPRC001  
Date Collected: 06/08/2015 12:55  
Date Received: 06/12/2015 09:10  
  
Method: GAMMA\_GS  
Analyst: MXR1  
Aliquot: 18.855 g  
Prep Method: DOE HASL 300, 4.5.2.3/Ga-01

Project: CPRC0F15027  
Matrix: SOIL  
%Moisture: 2.6  
  
Prep Basis: Dry Weight  
SOP Ref: GL-RAD-A-013  
Instrument: GAM12  
Count Time: 240 min  
Prep SOP Ref: GL-RAD-A-021

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137		0.184	pCi/g	+/-0.118	0.120	0.119	0.100
10198-40-0	Cobalt-60	U	0.0402	pCi/g	+/-0.0639	0.0665	0.130	0.050
14683-23-9	Europium-152	U	0.0503	pCi/g	+/-0.178	0.179	0.279	0.100
15585-10-1	Europium-154	U	0.129	pCi/g	+/-0.211	0.220	0.410	0.100
14391-16-3	Europium-155	U	0.0598	pCi/g	+/-0.170	0.172	0.307	0.100

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

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

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988001	<b>Date Collected:</b> 06/08/2015 12:55	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2.6
<b>Client ID:</b> B30RH4		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485720	<b>Method:</b> I129LL_SEP_LEPS_GS	<b>SOP Ref:</b> GL-RAD-A-006
<b>Run Date:</b> 06/20/2015 12:30	<b>Analyst:</b> MJH1	<b>Instrument:</b> XRAY1
<b>Data File:</b> I374988001.CNF;1	<b>Aliquot:</b> 1.004 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485720	<b>Prep Method:</b> DOE EML HASL-300,I-01 M	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	0.0264	pCi/g	+/-0.641	0.641	1.40	2.00

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988001	<b>Date Collected:</b> 06/08/2015 12:55	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2.6
<b>Client ID:</b> B30RH4		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485659	<b>Method:</b> TC99_EIE_LSC	<b>SOP Ref:</b> GL-RAD-A-059
<b>Run Date:</b> 06/23/2015 12:58	<b>Analyst:</b> MYM1	<b>Instrument:</b> LSCBLUE
<b>Data File:</b> E1485659.xls	<b>Aliquot:</b> 2.149 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485659	<b>Prep Method:</b> DOE EML HASL-300, Tc-02-	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	0.0811	pCi/g	+/-0.823	0.823	1.42	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	55700	58500	CPM	95.3	(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).

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988001	<b>Date Collected:</b> 06/08/2015 12:55	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2.6
<b>Client ID:</b> B30RH4		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1486494	<b>Method:</b> C14_LSC	<b>SOP Ref:</b> GL-RAD-A-003
<b>Run Date:</b> 06/22/2015 11:31	<b>Analyst:</b> EXK2	<b>Instrument:</b> LSCTEAL
<b>Data File:</b> C1486494R.xls	<b>Aliquot:</b> 0.605 g	<b>Count Time:</b> 40 min
<b>Prep Batch:</b> 1486494	<b>Prep Method:</b> EPA EERF C-01 Modified	
<b>Prep Date:</b> 06/20/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	0.518	pCi/g	+/-1.64	1.64	2.80	5.00

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988001	<b>Date Collected:</b> 06/08/2015 12:55	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2.6
<b>Client ID:</b> B30RH4		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1486509	<b>Method:</b> TRITIUM_DIST_LSC	<b>SOP Ref:</b> GL-RAD-A-002
<b>Run Date:</b> 06/22/2015 16:48	<b>Analyst:</b> GXR1	<b>Instrument:</b> LSCSILVER
<b>Data File:</b> T1486509.xls	<b>Aliquot:</b> 1.146 g	<b>Count Time:</b> 20 min
<b>Prep Batch:</b> 1486509	<b>Prep Method:</b> EPA 906.0 Modified	
<b>Prep Date:</b> 06/22/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		60.5	pCi/g	+/-17.2	22.0	23.7	30.0

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

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

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988001	<b>Date Collected:</b> 06/08/2015 12:55	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2.6
<b>Client ID:</b> B30RH4		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1485598	<b>Method:</b> ASTM D 2216 (Modified)	<b>SOP Ref:</b> GL-OA-E-020
<b>Run Date:</b> 06/12/2015 15:20	<b>Analyst:</b> CXC1	<b>Instrument:</b> BALHD2000D
<b>Data File:</b>		<b>Count Time:</b>
<b>Prep Batch:</b> 1485598		
<b>Prep Date:</b> 06/12/2015 15:20		

CAS No.	Parmname	Qual	Result	Units	MDC
	Moisture		2.57	percent +/-	

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

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

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**Certificate of Analysis**  
**Sample Summary**

SDG Number: GEL374988	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 374988002	Date Collected: 05/18/2015 13:44	Matrix: SOIL
	Date Received: 06/12/2015 09:10	%Moisture: 4.3
Client ID: B30RF0	Method: AMCMISO_EIE_PREC_AEA	Prep Basis: Dry Weight
Batch ID: 1485928	Analyst: MXS2	SOP Ref: GL-RAD-A-011
Run Date: 06/20/2015 16:19	Aliquot: 0.1 g	Instrument: 1239
Data File: S0374988002_AM.1A.gcnf	Prep Method: DOE EML HASL-300, Am-05	Count Time: 240 min
Prep Batch: 1485928		Prep SOP Ref: GL-RAD-A-021
Prep Date: 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	-0.0389	pCi/g	+/-0.336	0.337	0.778	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	10.6	21.4	pCi/g	49.4	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988002	<b>Date Collected:</b> 05/18/2015 13:44	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 4.3
<b>Client ID:</b> B30RF0	<b>Method:</b> PUIISO_PLATE_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485930	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/19/2015 10:10	<b>Aliquot:</b> 0.1 g	<b>Instrument:</b> 1229
<b>Data File:</b> S0374988002_PU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Pu-11-	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485930		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	-0.0229	pCi/g	+/-0.198	0.198	0.458	1.00
OER-100-70	Plutonium-239/240	U	0.317	pCi/g	+/-0.475	0.478	0.739	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	15.1	19.7	pCi/g	76.7	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988002	<b>Date Collected:</b> 05/18/2015 13:44	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 4.3
<b>Client ID:</b> B30RF0	<b>Method:</b> UIISO_IE_PRECIP_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485931	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:18	<b>Aliquot:</b> 0.1 g	<b>Instrument:</b> 1129
<b>Data File:</b> S0374988002_UU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, U-02-R	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485931		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 13968-55-3/139	Uranium-233/234	U	0.309	pCi/g	+/-0.362	0.365	0.502	1.00
15117-96-1/13982	Uranium-235/236	U	-0.0201	pCi/g	+/-0.174	0.174	0.402	1.00
7440-61-1	Uranium-238	U	0.187	pCi/g	+/-0.270	0.271	0.325	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	22.3	21.2	pCi/g	105	(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).

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988002	<b>Date Collected:</b> 05/18/2015 13:44	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 4.3
<b>Client ID:</b> B30RF0		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485858	<b>Method:</b> SRISO_SEP_PRECIP_GPC	<b>SOP Ref:</b> GL-RAD-A-004
<b>Run Date:</b> 06/29/2015 07:00	<b>Analyst:</b> KSD1	<b>Instrument:</b> PIC2B
<b>Data File:</b> S1485858r2.xls	<b>Aliquot:</b> 1.004 g	<b>Count Time:</b> 60 min
<b>Prep Batch:</b> 1485858	<b>Prep Method:</b> EPA 905.0 Modified/DOE RP5	<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/19/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90		0.949	pCi/g	+/-0.291	0.341	0.382	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.00	8.10	mg	86.4	(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).

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

SDG Number: GEL374988  
 Lab Sample ID: 374988002  
  
 Client ID: B30RF0  
 Batch ID: 1485712  
 Run Date: 06/16/2015 07:00  
 Data File: G374988002.CNF;2  
 Prep Batch: 1485712  
 Prep Date: 06/15/2015 00:00

Client: CPRC001  
 Date Collected: 05/18/2015 13:44  
 Date Received: 06/12/2015 09:10  
  
 Method: GAMMA\_GS  
 Analyst: MXR1  
 Aliquot: 18.375 g  
 Prep Method: DOE HASL 300, 4.5.2.3/Ga-01

Project: CPRC0F15027  
 Matrix: SOIL  
 %Moisture: 4.3  
  
 Prep Basis: Dry Weight  
 SOP Ref: GL-RAD-A-013  
 Instrument: GAM23  
 Count Time: 240 min  
 Prep SOP Ref: GL-RAD-A-021

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	-0.00988	pCi/g	+/-0.0685	0.0686	0.123	0.100
10198-40-0	Cobalt-60	U	-0.015	pCi/g	+/-0.0796	0.0799	0.144	0.050
14683-23-9	Europium-152	U	-0.0414	pCi/g	+/-0.146	0.147	0.257	0.100
15585-10-1	Europium-154	U	-0.0611	pCi/g	+/-0.252	0.253	0.448	0.100
14391-16-3	Europium-155	U	0.000266	pCi/g	+/-0.122	0.122	0.221	0.100

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988002	<b>Date Collected:</b> 05/18/2015 13:44	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 4.3
<b>Client ID:</b> B30RF0		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485720	<b>Method:</b> I129LL_SEP_LEPS_GS	<b>SOP Ref:</b> GL-RAD-A-006
<b>Run Date:</b> 06/20/2015 12:30	<b>Analyst:</b> MJH1	<b>Instrument:</b> GAM21
<b>Data File:</b> I374988002.CNF;1	<b>Aliquot:</b> 1.015 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485720	<b>Prep Method:</b> DOE EML HASL-300,I-01 M	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I5046-84-1	Iodine-129	U	-0.485	pCi/g	+/-0.726	0.760	1.19	2.00

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988002	<b>Date Collected:</b> 05/18/2015 13:44	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 4.3
<b>Client ID:</b> B30RF0		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485659	<b>Method:</b> TC99_EIE_LSC	<b>SOP Ref:</b> GL-RAD-A-059
<b>Run Date:</b> 06/23/2015 13:31	<b>Analyst:</b> MYM1	<b>Instrument:</b> LSCBLUE
<b>Data File:</b> E1485659.xls	<b>Aliquot:</b> 2.161 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485659	<b>Prep Method:</b> DOE EML HASL-300, Tc-02-	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-0.537	pCi/g	+/-0.789	0.789	1.39	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	55300	58500	CPM	94.5	(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).

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988002	<b>Date Collected:</b> 05/18/2015 13:44	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 4.3
<b>Client ID:</b> B30RF0		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1486494	<b>Method:</b> C14_LSC	<b>SOP Ref:</b> GL-RAD-A-003
<b>Run Date:</b> 06/21/2015 11:51	<b>Analyst:</b> EXK2	<b>Instrument:</b> LSCTEAL
<b>Data File:</b> C1486494.xls	<b>Aliquot:</b> 0.523 g	<b>Count Time:</b> 40 min
<b>Prep Batch:</b> 1486494	<b>Prep Method:</b> EPA EERF C-01 Modified	
<b>Prep Date:</b> 06/20/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-0.98	pCi/g	+/-1.89	1.89	3.31	5.00

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

SDG Number: GEL374988  
Lab Sample ID: 374988002

Client: CPRC001  
Date Collected: 05/18/2015 13:44  
Date Received: 06/12/2015 09:10

Project: CPRC0F15027  
Matrix: SOIL  
%Moisture: 4.3

Client ID: B30RF0  
Batch ID: 1486509  
Run Date: 06/22/2015 17:10  
Data File: T1486509.xls  
Prep Batch: 1486509  
Prep Date: 06/22/2015 00:00

Method: TRITIUM\_DIST\_LSC  
Analyst: GXR1  
Aliquot: 1.28 g  
Prep Method: EPA 906.0 Modified

Prep Basis: As Received  
SOP Ref: GL-RAD-A-002  
Instrument: LSCSILVER  
Count Time: 20 min

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		37.1	pCi/g	+/-14.6	16.9	21.7	30.0

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

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

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988002	<b>Date Collected:</b> 05/18/2015 13:44	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 4.3
<b>Client ID:</b> B30RF0		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1485598	<b>Method:</b> ASTM D 2216 (Modified)	<b>SOP Ref:</b> GL-OA-E-020
<b>Run Date:</b> 06/12/2015 15:20	<b>Analyst:</b> CXC1	<b>Instrument:</b> BALHD2000D
<b>Data File:</b>		<b>Count Time:</b>
<b>Prep Batch:</b> 1485598		
<b>Prep Date:</b> 06/12/2015 15:20		

CAS No.	Parmname	Qual	Result	Units	MDC	
	Moisture		4.27	percent +/-		
<b>Surrogate/Tracer recovery</b>		<b>Result</b>	<b>Nominal</b>	<b>Units</b>	<b>Recovery%</b>	<b>Acceptable Limits</b>

**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).

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988003	<b>Date Collected:</b> 06/08/2015 09:36	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.4
<b>Client ID:</b> B30RF2	<b>Method:</b> AMCMISO_EIE_PREC_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485928	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 16:19	<b>Aliquot:</b> 0.107 g	<b>Instrument:</b> 1240
<b>Data File:</b> S0374988003_AM.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Am-05	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485928		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	-0.15	pCi/g	+/-0.242	0.243	0.771	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	13.4	20.0	pCi/g	67.0	(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).

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**Certificate of Analysis**  
**Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988003	<b>Date Collected:</b> 06/08/2015 09:36	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.4
<b>Client ID:</b> B30RF2	<b>Method:</b> PUIISO_PLATE_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485930	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/25/2015 13:28	<b>Aliquot:</b> 0.107 g	<b>Instrument:</b> 1110
<b>Data File:</b> S0374988003_PU.2A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Pu-11-	<b>Count Time:</b> 1000 min
<b>Prep Batch:</b> 1485930		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.147	pCi/g	+/-0.408	0.409	0.706	1.00
OER-100-70	Plutonium-239/240	U	0.221	pCi/g	+/-0.433	0.434	0.705	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	3.30	18.4	pCi/g	17.9	(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).

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988003	<b>Date Collected:</b> 06/08/2015 09:36	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.4
<b>Client ID:</b> B30RF2	<b>Method:</b> UIISO_IE_PRECIP_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485931	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:18	<b>Aliquot:</b> 0.107 g	<b>Instrument:</b> 1130
<b>Data File:</b> S0374988003_UU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, U-02-R	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485931		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 13968-55-3/139	Uranium-233/234	U	0.411	pCi/g	+/-0.391	0.396	0.412	1.00
15117-96-1/13982	Uranium-235/236	U	0.184	pCi/g	+/-0.315	0.317	0.276	1.00
7440-61-1	Uranium-238		0.652	pCi/g	+/-0.464	0.476	0.357	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	17.4	19.8	pCi/g	87.8	(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).

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988003	<b>Date Collected:</b> 06/08/2015 09:36	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.4
<b>Client ID:</b> B30RF2	<b>Method:</b> SRISO_SEP_PRECIP_GPC	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485858	<b>Analyst:</b> KSD1	<b>SOP Ref:</b> GL-RAD-A-004
<b>Run Date:</b> 06/29/2015 07:00	<b>Aliquot:</b> 1.016 g	<b>Instrument:</b> PIC1C
<b>Data File:</b> S1485858r2.xls	<b>Prep Method:</b> EPA 905.0 Modified/DOE RP5	<b>Count Time:</b> 60 min
<b>Prep Batch:</b> 1485858		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/19/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90		3.51	pCi/g	+/-0.406	0.746	0.255	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.00	8.10	mg	86.4	(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).

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988003	<b>Date Collected:</b> 06/08/2015 09:36	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.4
<b>Client ID:</b> B30RF2	<b>Method:</b> GAMMA_GS	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485712	<b>Analyst:</b> MXR1	<b>SOP Ref:</b> GL-RAD-A-013
<b>Run Date:</b> 06/16/2015 07:59	<b>Aliquot:</b> 18.714 g	<b>Instrument:</b> GAM09
<b>Data File:</b> G374988003.CNF;1	<b>Prep Method:</b> DOE HASL 300, 4.5.2.3/Ga-01	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485712		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	-0.0114	pCi/g	+/-0.0517	0.052	0.0899	0.100
10198-40-0	Cobalt-60	U	-0.0135	pCi/g	+/-0.0795	0.0798	0.111	0.050
14683-23-9	Europium-152	U	-0.00369	pCi/g	+/-0.132	0.132	0.224	0.100
15585-10-1	Europium-154	U	0.00	pCi/g	+/-0.166	0.00	0.319	0.100
14391-16-3	Europium-155	U	-0.0293	pCi/g	+/-0.125	0.126	0.207	0.100

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

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

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988003	<b>Date Collected:</b> 06/08/2015 09:36	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.4
<b>Client ID:</b> B30RF2		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485720	<b>Method:</b> I129LL_SEP_LEPS_GS	<b>SOP Ref:</b> GL-RAD-A-006
<b>Run Date:</b> 06/20/2015 12:30	<b>Analyst:</b> MJH1	<b>Instrument:</b> XRAY3
<b>Data File:</b> I374988003.CNF;1	<b>Aliquot:</b> 1.013 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485720	<b>Prep Method:</b> DOE EML HASL-300,I-01 M	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.397	pCi/g	+/-0.642	0.668	1.00	2.00

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

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

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988003	<b>Date Collected:</b> 06/08/2015 09:36	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.4
<b>Client ID:</b> B30RF2		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485659	<b>Method:</b> TC99_EIE_LSC	<b>SOP Ref:</b> GL-RAD-A-059
<b>Run Date:</b> 06/23/2015 14:03	<b>Analyst:</b> MYM1	<b>Instrument:</b> LSCBLUE
<b>Data File:</b> E1485659.xls	<b>Aliquot:</b> 2.15 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485659	<b>Prep Method:</b> DOE EML HASL-300, Tc-02-	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	0.126	pCi/g	+/-0.801	0.801	1.38	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	55600	58500	CPM	95.1	(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).

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988003	<b>Date Collected:</b> 06/08/2015 09:36	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.4
<b>Client ID:</b> B30RF2		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1486494	<b>Method:</b> C14_LSC	<b>SOP Ref:</b> GL-RAD-A-003
<b>Run Date:</b> 06/22/2015 12:12	<b>Analyst:</b> EXK2	<b>Instrument:</b> LSCTEAL
<b>Data File:</b> C1486494R.xls	<b>Aliquot:</b> 0.548 g	<b>Count Time:</b> 40 min
<b>Prep Batch:</b> 1486494	<b>Prep Method:</b> EPA EERF C-01 Modified	
<b>Prep Date:</b> 06/20/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	0.0839	pCi/g	+/-1.79	1.79	3.09	5.00

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

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

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988003	<b>Date Collected:</b> 06/08/2015 09:36	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.4
<b>Client ID:</b> B30RF2		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1486509	<b>Method:</b> TRITIUM_DIST_LSC	<b>SOP Ref:</b> GL-RAD-A-002
<b>Run Date:</b> 06/22/2015 17:31	<b>Analyst:</b> GXR1	<b>Instrument:</b> LSCSILVER
<b>Data File:</b> T1486509.xls	<b>Aliquot:</b> 1.041 g	<b>Count Time:</b> 20 min
<b>Prep Batch:</b> 1486509	<b>Prep Method:</b> EPA 906.0 Modified	
<b>Prep Date:</b> 06/22/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		36.0	pCi/g	+/-17.4	19.2	26.7	30.0

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

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

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988003	<b>Date Collected:</b> 06/08/2015 09:36	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.4
<b>Client ID:</b> B30RF2		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1485598	<b>Method:</b> ASTM D 2216 (Modified)	<b>SOP Ref:</b> GL-OA-E-020
<b>Run Date:</b> 06/12/2015 15:20	<b>Analyst:</b> CXC1	<b>Instrument:</b> BALHD2000D
<b>Data File:</b>		<b>Count Time:</b>
<b>Prep Batch:</b> 1485598		
<b>Prep Date:</b> 06/12/2015 15:20		

CAS No.	Parmname	Qual	Result	Units	MDC
	Moisture		1.45	percent +/-	

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988004	<b>Date Collected:</b> 06/08/2015 09:49	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2.9
<b>Client ID:</b> B30RF5	<b>Method:</b> AMCMISO_EIE_PREC_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485928	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 16:19	<b>Aliquot:</b> 0.106 g	<b>Instrument:</b> 1242
<b>Data File:</b> S0374988004_AM.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Am-05	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485928		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	-0.088	pCi/g	+/-0.266	0.267	0.747	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	11.3	20.2	pCi/g	56.2	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988004	<b>Date Collected:</b> 06/08/2015 09:49	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2.9
<b>Client ID:</b> B30RF5	<b>Method:</b> PUIISO_PLATE_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485930	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/19/2015 10:10	<b>Aliquot:</b> 0.106 g	<b>Instrument:</b> 1255
<b>Data File:</b> S0374988004_PU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Pu-11-	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485930		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I3981-16-3	Plutonium-238	U	-0.0483	pCi/g	+/-0.214	0.214	0.558	1.00
OER-100-70	Plutonium-239/240	U	-0.145	pCi/g	+/-0.234	0.234	0.745	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	12.8	18.6	pCi/g	69.0	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988004	<b>Date Collected:</b> 06/08/2015 09:49	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2.9
<b>Client ID:</b> B30RF5	<b>Method:</b> UIISO_IE_PRECIP_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485931	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:18	<b>Aliquot:</b> 0.106 g	<b>Instrument:</b> 1131
<b>Data File:</b> S0374988004_UU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, U-02-R	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485931		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 13968-55-3/139	Uranium-233/234		0.537	pCi/g	+/-0.461	0.470	0.456	1.00
15117-96-1/13982	Uranium-235/236	U	0.102	pCi/g	+/-0.286	0.287	0.305	1.00
7440-61-1	Uranium-238	U	0.227	pCi/g	+/-0.327	0.330	0.395	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	16.6	20.0	pCi/g	83.0	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988004	<b>Date Collected:</b> 06/08/2015 09:49	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2.9
<b>Client ID:</b> B30RF5	<b>Method:</b> SRISO_SEP_PRECIP_GPC	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485858	<b>Analyst:</b> KSD1	<b>SOP Ref:</b> GL-RAD-A-004
<b>Run Date:</b> 06/29/2015 07:00	<b>Aliquot:</b> 1 g	<b>Instrument:</b> PIC4A
<b>Data File:</b> S1485858r2.xls	<b>Prep Method:</b> EPA 905.0 Modified/DOE RP5	<b>Count Time:</b> 60 min
<b>Prep Batch:</b> 1485858		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/19/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90		56.5	pCi/g	+/-1.56	10.3	0.354	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.10	8.10	mg	87.7	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

SDG Number: GEL374988  
Lab Sample ID: 374988004  
  
Client ID: B30RF5  
Batch ID: 1485712  
Run Date: 06/16/2015 07:59  
Data File: G374988004.CNF;1  
Prep Batch: 1485712  
Prep Date: 06/15/2015 00:00

Client: CPRC001  
Date Collected: 06/08/2015 09:49  
Date Received: 06/12/2015 09:10  
  
Method: GAMMA\_GS  
Analyst: MXR1  
Aliquot: 18.983 g  
Prep Method: DOE HASL 300, 4.5.2.3/Ga-01

Project: CPRC0F15027  
Matrix: SOIL  
%Moisture: 2.9  
  
Prep Basis: Dry Weight  
SOP Ref: GL-RAD-A-013  
Instrument: GAM14  
Count Time: 240 min  
Prep SOP Ref: GL-RAD-A-021

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.0179	pCi/g	+/-0.0495	0.0502	0.0944	0.100
10198-40-0	Cobalt-60	U	-0.0176	pCi/g	+/-0.0604	0.0609	0.111	0.050
14683-23-9	Europium-152	U	0.0276	pCi/g	+/-0.145	0.145	0.216	0.100
15585-10-1	Europium-154	U	0.122	pCi/g	+/-0.168	0.177	0.347	0.100
14391-16-3	Europium-155	U	-0.0293	pCi/g	+/-0.138	0.139	0.236	0.100

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988004	<b>Date Collected:</b> 06/08/2015 09:49	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2.9
<b>Client ID:</b> B30RF5		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485720	<b>Method:</b> I129LL_SEP_LEPS_GS	<b>SOP Ref:</b> GL-RAD-A-006
<b>Run Date:</b> 06/20/2015 13:24	<b>Analyst:</b> MJH1	<b>Instrument:</b> XRAY1
<b>Data File:</b> I374988004.CNF;1	<b>Aliquot:</b> 1.008 g	<b>Count Time:</b> 60 min
<b>Prep Batch:</b> 1485720	<b>Prep Method:</b> DOE EML HASL-300,I-01 M	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.31	pCi/g	+/-0.538	0.557	0.915	2.00

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988004	<b>Date Collected:</b> 06/08/2015 09:49	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2.9
<b>Client ID:</b> B30RF5		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485659	<b>Method:</b> TC99_EIE_LSC	<b>SOP Ref:</b> GL-RAD-A-059
<b>Run Date:</b> 06/23/2015 14:36	<b>Analyst:</b> MYM1	<b>Instrument:</b> LSCBLUE
<b>Data File:</b> E1485659.xls	<b>Aliquot:</b> 2.239 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485659	<b>Prep Method:</b> DOE EML HASL-300, Tc-02-	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-0.125	pCi/g	+/-0.759	0.759	1.32	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	54800	58500	CPM	93.7	(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).

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988004	<b>Date Collected:</b> 06/08/2015 09:49	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2.9
<b>Client ID:</b> B30RF5		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1486494	<b>Method:</b> C14_LSC	<b>SOP Ref:</b> GL-RAD-A-003
<b>Run Date:</b> 06/21/2015 13:13	<b>Analyst:</b> EXK2	<b>Instrument:</b> LSCTEAL
<b>Data File:</b> C1486494.xls	<b>Aliquot:</b> 0.561 g	<b>Count Time:</b> 40 min
<b>Prep Batch:</b> 1486494	<b>Prep Method:</b> EPA EERF C-01 Modified	
<b>Prep Date:</b> 06/20/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-0.819	pCi/g	+/-1.75	1.75	3.08	5.00

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

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

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988004	<b>Date Collected:</b> 06/08/2015 09:49	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2.9
<b>Client ID:</b> B30RF5		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1486509	<b>Method:</b> TRITIUM_DIST_LSC	<b>SOP Ref:</b> GL-RAD-A-002
<b>Run Date:</b> 06/22/2015 17:53	<b>Analyst:</b> GXR1	<b>Instrument:</b> LSCSILVER
<b>Data File:</b> T1486509.xls	<b>Aliquot:</b> 1.003 g	<b>Count Time:</b> 20 min
<b>Prep Batch:</b> 1486509	<b>Prep Method:</b> EPA 906.0 Modified	
<b>Prep Date:</b> 06/22/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		58.2	pCi/g	+/-19.0	23.1	27.0	30.0

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

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

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988004	<b>Date Collected:</b> 06/08/2015 09:49	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2.9
<b>Client ID:</b> B30RF5		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1485598	<b>Method:</b> ASTM D 2216 (Modified)	<b>SOP Ref:</b> GL-OA-E-020
<b>Run Date:</b> 06/12/2015 15:20	<b>Analyst:</b> CXC1	<b>Instrument:</b> BALHD2000D
<b>Data File:</b>		<b>Count Time:</b>
<b>Prep Batch:</b> 1485598		
<b>Prep Date:</b> 06/12/2015 15:20		

CAS No.	Parmname	Qual	Result	Units	MDC
	Moisture		2.88	percent +/-	

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

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

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988005	<b>Date Collected:</b> 05/12/2015 08:08	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.7
<b>Client ID:</b> B30RB9	<b>Method:</b> AMCMISO_EIE_PREC_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485928	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 16:19	<b>Aliquot:</b> 0.101 g	<b>Instrument:</b> 1243
<b>Data File:</b> S0374988005_AM.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Am-05	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485928		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	-0.0741	pCi/g	+/-0.224	0.224	0.628	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	15.6	21.2	pCi/g	73.8	(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).

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**Certificate of Analysis**  
**Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988005	<b>Date Collected:</b> 05/12/2015 08:08	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.7
<b>Client ID:</b> B30RB9	<b>Method:</b> PUIISO_PLATE_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485930	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/23/2015 15:20	<b>Aliquot:</b> 0.101 g	<b>Instrument:</b> 1084
<b>Data File:</b> S0374988005_PU.2A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Pu-11-	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485930		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.144	pCi/g	+/-0.286	0.287	0.464	1.00
OER-100-70	Plutonium-239/240	U	0.265	pCi/g	+/-0.312	0.314	0.337	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	14.6	19.5	pCi/g	74.7	(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).

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988005	<b>Date Collected:</b> 05/12/2015 08:08	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.7
<b>Client ID:</b> B30RB9	<b>Method:</b> UIISO_IE_PRECIP_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485931	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:18	<b>Aliquot:</b> 0.101 g	<b>Instrument:</b> 1132
<b>Data File:</b> S0374988005_UU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, U-02-R	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485931		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 13968-55-3/139	Uranium-233/234	U	0.464	pCi/g	+/-0.441	0.448	0.466	1.00
15117-96-1/13982	Uranium-235/236	U	0.079	pCi/g	+/-0.296	0.297	0.498	1.00
7440-61-1	Uranium-238	U	0.235	pCi/g	+/-0.381	0.383	0.590	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	18.0	21.0	pCi/g	85.5	(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).

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988005	<b>Date Collected:</b> 05/12/2015 08:08	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.7
<b>Client ID:</b> B30RB9	<b>Method:</b> SRISO_SEP_PRECIP_GPC	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485858	<b>Analyst:</b> KSD1	<b>SOP Ref:</b> GL-RAD-A-004
<b>Run Date:</b> 06/29/2015 07:00	<b>Aliquot:</b> 1.005 g	<b>Instrument:</b> PIC1D
<b>Data File:</b> S1485858r2.xls	<b>Prep Method:</b> EPA 905.0 Modified/DOE RP5	<b>Count Time:</b> 60 min
<b>Prep Batch:</b> 1485858		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/19/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90		1.64	pCi/g	+/-0.334	0.443	0.369	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	6.90	8.10	mg	85.2	(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).

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Certificate of Analysis  
Sample SummarySDG Number: GEL374988  
Lab Sample ID: 374988005Client: CPRC001  
Date Collected: 05/12/2015 08:08  
Date Received: 06/12/2015 09:10Project: CPRC0F15027  
Matrix: SOIL  
%Moisture: 1.7Client ID: B30RB9  
Batch ID: 1485712  
Run Date: 06/16/2015 08:00  
Data File: G374988005.CNF;1  
Prep Batch: 1485712  
Prep Date: 06/15/2015 00:00Method: GAMMA\_GS  
Analyst: MXR1  
Aliquot: 20.02 g  
Prep Method: DOE HASL 300, 4.5.2.3/Ga-01Prep Basis: Dry Weight  
SOP Ref: GL-RAD-A-013  
Instrument: GAM32  
Count Time: 240 min  
Prep SOP Ref: GL-RAD-A-021

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.054	pCi/g	+/-0.0834	0.0836	0.0992	0.100
10198-40-0	Cobalt-60	U	0.0385	pCi/g	+/-0.0883	0.0901	0.147	0.050
14683-23-9	Europium-152		0.746	pCi/g	+/-0.236	0.247	0.232	0.100
15585-10-1	Europium-154	U	-0.157	pCi/g	+/-0.217	0.229	0.337	0.100
14391-16-3	Europium-155	U	0.101	pCi/g	+/-0.144	0.151	0.255	0.100

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

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

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988005	<b>Date Collected:</b> 05/12/2015 08:08	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.7
<b>Client ID:</b> B30RB9		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485720	<b>Method:</b> I129LL_SEP_LEPS_GS	<b>SOP Ref:</b> GL-RAD-A-006
<b>Run Date:</b> 06/20/2015 13:24	<b>Analyst:</b> MJH1	<b>Instrument:</b> XRAY3
<b>Data File:</b> I374988005.CNF;1	<b>Aliquot:</b> 1.004 g	<b>Count Time:</b> 60 min
<b>Prep Batch:</b> 1485720	<b>Prep Method:</b> DOE EML HASL-300,I-01 M	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.123	pCi/g	+/-0.424	0.428	0.788	2.00

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

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

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988005	<b>Date Collected:</b> 05/12/2015 08:08	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.7
<b>Client ID:</b> B30RB9		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485659	<b>Method:</b> TC99_EIE_LSC	<b>SOP Ref:</b> GL-RAD-A-059
<b>Run Date:</b> 06/23/2015 15:08	<b>Analyst:</b> MYM1	<b>Instrument:</b> LSCBLUE
<b>Data File:</b> E1485659.xls	<b>Aliquot:</b> 2.068 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485659	<b>Prep Method:</b> DOE EML HASL-300, Tc-02-	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-0.338	pCi/g	+/-0.812	0.812	1.42	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	55100	58500	CPM	94.2	(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).

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988005	<b>Date Collected:</b> 05/12/2015 08:08	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.7
<b>Client ID:</b> B30RB9		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1486494	<b>Method:</b> C14_LSC	<b>SOP Ref:</b> GL-RAD-A-003
<b>Run Date:</b> 06/22/2015 12:53	<b>Analyst:</b> EXK2	<b>Instrument:</b> LSCTEAL
<b>Data File:</b> C1486494R.xls	<b>Aliquot:</b> 0.575 g	<b>Count Time:</b> 40 min
<b>Prep Batch:</b> 1486494	<b>Prep Method:</b> EPA EERF C-01 Modified	
<b>Prep Date:</b> 06/20/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-0.654	pCi/g	+/-1.68	1.68	2.94	5.00

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988005	<b>Date Collected:</b> 05/12/2015 08:08	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.7
<b>Client ID:</b> B30RB9		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1486509	<b>Method:</b> TRITIUM_DIST_LSC	<b>SOP Ref:</b> GL-RAD-A-002
<b>Run Date:</b> 06/22/2015 18:14	<b>Analyst:</b> GXR1	<b>Instrument:</b> LSCSILVER
<b>Data File:</b> T1486509.xls	<b>Aliquot:</b> 1.277 g	<b>Count Time:</b> 20 min
<b>Prep Batch:</b> 1486509	<b>Prep Method:</b> EPA 906.0 Modified	
<b>Prep Date:</b> 06/22/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	3.85	pCi/g	+/-12.3	12.4	21.7	30.0

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

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

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988005	<b>Date Collected:</b> 05/12/2015 08:08	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.7
<b>Client ID:</b> B30RB9		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1485598	<b>Method:</b> ASTM D 2216 (Modified)	<b>SOP Ref:</b> GL-OA-E-020
<b>Run Date:</b> 06/12/2015 15:20	<b>Analyst:</b> CXC1	<b>Instrument:</b> BALHD2000D
<b>Data File:</b>		<b>Count Time:</b>
<b>Prep Batch:</b> 1485598		
<b>Prep Date:</b> 06/12/2015 15:20		

CAS No.	Parmname	Qual	Result	Units	MDC	
	Moisture		1.67	percent +/-		
<b>Surrogate/Tracer recovery</b>		<b>Result</b>	<b>Nominal</b>	<b>Units</b>	<b>Recovery%</b>	<b>Acceptable Limits</b>

**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).

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988006	<b>Date Collected:</b> 06/08/2015 10:04	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.1
<b>Client ID:</b> B30RF7		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485928	<b>Method:</b> AMCMISO_EIE_PREC_AEA	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 16:19	<b>Analyst:</b> MXS2	<b>Instrument:</b> 1244
<b>Data File:</b> S0374988006_AM.1A.gcnf	<b>Aliquot:</b> 0.101 g	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485928	<b>Prep Method:</b> DOE EML HASL-300, Am-05	<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	-0.0538	pCi/g	+/-0.238	0.238	0.621	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	14.9	21.2	pCi/g	70.5	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988006	<b>Date Collected:</b> 06/08/2015 10:04	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.1
<b>Client ID:</b> B30RF7		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485930	<b>Method:</b> PUIISO_PLATE_AEA	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:25	<b>Analyst:</b> MXS2	<b>Instrument:</b> 1093
<b>Data File:</b> S0374988006_PU.1A.gcnf	<b>Aliquot:</b> 0.101 g	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485930	<b>Prep Method:</b> DOE EML HASL-300, Pu-11-	<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.0542	pCi/g	+/-0.203	0.204	0.342	1.00
OER-100-70	Plutonium-239/240	U	0.0571	pCi/g	+/-0.256	0.256	0.500	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	15.1	19.5	pCi/g	77.6	(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).

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988006	<b>Date Collected:</b> 06/08/2015 10:04	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.1
<b>Client ID:</b> B30RF7	<b>Method:</b> UIISO_IE_PRECIP_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485931	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:18	<b>Aliquot:</b> 0.101 g	<b>Instrument:</b> 1133
<b>Data File:</b> S0374988006_UU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, U-02-R	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485931		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 13968-55-3/139	Uranium-233/234		0.553	pCi/g	+/-0.475	0.484	0.470	1.00
15117-96-1/13982	Uranium-235/236	U	-0.0252	pCi/g	+/-0.217	0.218	0.503	1.00
7440-61-1	Uranium-238	U	0.468	pCi/g	+/-0.445	0.452	0.470	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	18.4	21.0	pCi/g	87.4	(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).

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988006	<b>Date Collected:</b> 06/08/2015 10:04	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.1
<b>Client ID:</b> B30RF7	<b>Method:</b> SRISO_SEP_PRECIP_GPC	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485858	<b>Analyst:</b> KSD1	<b>SOP Ref:</b> GL-RAD-A-004
<b>Run Date:</b> 06/29/2015 07:00	<b>Aliquot:</b> 1.008 g	<b>Instrument:</b> PIC2C
<b>Data File:</b> S1485858r2.xls	<b>Prep Method:</b> EPA 905.0 Modified/DOE RP5	<b>Count Time:</b> 60 min
<b>Prep Batch:</b> 1485858		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/19/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90		90.0	pCi/g	+/-2.03	16.3	0.236	1.00

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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

SDG Number: GEL374988  
 Lab Sample ID: 374988006  
 Client ID: B30RF7  
 Batch ID: 1485712  
 Run Date: 06/16/2015 08:00  
 Data File: G374988006.CNF;1  
 Prep Batch: 1485712  
 Prep Date: 06/15/2015 00:00

Client: CPRC001  
 Date Collected: 06/08/2015 10:04  
 Date Received: 06/12/2015 09:10  
 Method: GAMMA\_GS  
 Analyst: MXR1  
 Aliquot: 17.816 g  
 Prep Method: DOE HASL 300, 4.5.2.3/Ga-01

Project: CPRC0F15027  
 Matrix: SOIL  
 %Moisture: 3.1  
 Prep Basis: Dry Weight  
 SOP Ref: GL-RAD-A-013  
 Instrument: GAM33  
 Count Time: 240 min  
 Prep SOP Ref: GL-RAD-A-021

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	-0.0283	pCi/g	+/-0.055	0.0565	0.098	0.100
10198-40-0	Cobalt-60	U	-0.0455	pCi/g	+/-0.0619	0.0653	0.107	0.050
14683-23-9	Europium-152	U	0.0173	pCi/g	+/-0.147	0.147	0.258	0.100
15585-10-1	Europium-154	U	0.112	pCi/g	+/-0.189	0.196	0.376	0.100
14391-16-3	Europium-155	U	0.142	pCi/g	+/-0.173	0.185	0.311	0.100

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

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

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988006	<b>Date Collected:</b> 06/08/2015 10:04	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.1
<b>Client ID:</b> B30RF7		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485720	<b>Method:</b> I129LL_SEP_LEPS_GS	<b>SOP Ref:</b> GL-RAD-A-006
<b>Run Date:</b> 06/22/2015 07:36	<b>Analyst:</b> MJH1	<b>Instrument:</b> XRAY1
<b>Data File:</b> I374988006.CNF;1	<b>Aliquot:</b> 1.023 g	<b>Count Time:</b> 60 min
<b>Prep Batch:</b> 1485720	<b>Prep Method:</b> DOE EML HASL-300,I-01 M	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.239	pCi/g	+/-0.482	0.495	0.842	2.00

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988006	<b>Date Collected:</b> 06/08/2015 10:04	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.1
<b>Client ID:</b> B30RF7		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485659	<b>Method:</b> TC99_EIE_LSC	<b>SOP Ref:</b> GL-RAD-A-059
<b>Run Date:</b> 06/23/2015 15:40	<b>Analyst:</b> MYM1	<b>Instrument:</b> LSCBLUE
<b>Data File:</b> E1485659.xls	<b>Aliquot:</b> 2.11 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485659	<b>Prep Method:</b> DOE EML HASL-300, Tc-02-	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	0.0259	pCi/g	+/-0.790	0.790	1.36	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	56300	58500	CPM	96.2	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988006	<b>Date Collected:</b> 06/08/2015 10:04	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.1
<b>Client ID:</b> B30RF7		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1486494	<b>Method:</b> C14_LSC	<b>SOP Ref:</b> GL-RAD-A-003
<b>Run Date:</b> 06/22/2015 13:34	<b>Analyst:</b> EXK2	<b>Instrument:</b> LSCTEAL
<b>Data File:</b> C1486494R.xls	<b>Aliquot:</b> 0.544 g	<b>Count Time:</b> 40 min
<b>Prep Batch:</b> 1486494	<b>Prep Method:</b> EPA EERF C-01 Modified	
<b>Prep Date:</b> 06/20/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	0.708	pCi/g	+/-1.83	1.84	3.13	5.00

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988006	<b>Date Collected:</b> 06/08/2015 10:04	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.1
<b>Client ID:</b> B30RF7		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1486509	<b>Method:</b> TRITIUM_DIST_LSC	<b>SOP Ref:</b> GL-RAD-A-002
<b>Run Date:</b> 06/22/2015 18:35	<b>Analyst:</b> GXR1	<b>Instrument:</b> LSCSILVER
<b>Data File:</b> T1486509.xls	<b>Aliquot:</b> 1.001 g	<b>Count Time:</b> 20 min
<b>Prep Batch:</b> 1486509	<b>Prep Method:</b> EPA 906.0 Modified	
<b>Prep Date:</b> 06/22/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		54.5	pCi/g	+/-19.1	22.8	27.6	30.0

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

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

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988006	<b>Date Collected:</b> 06/08/2015 10:04	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.1
<b>Client ID:</b> B30RF7		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1485598	<b>Method:</b> ASTM D 2216 (Modified)	<b>SOP Ref:</b> GL-OA-E-020
<b>Run Date:</b> 06/12/2015 15:20	<b>Analyst:</b> CXC1	<b>Instrument:</b> BALHD2000D
<b>Data File:</b>		<b>Count Time:</b>
<b>Prep Batch:</b> 1485598		
<b>Prep Date:</b> 06/12/2015 15:20		

CAS No.	Parmname	Qual	Result	Units	MDC
	Moisture		3.13	percent +/-	

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988007	<b>Date Collected:</b> 06/08/2015 13:22	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 18.2
<b>Client ID:</b> B30RH8	<b>Method:</b> AMCMISO_EIE_PREC_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485928	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 16:19	<b>Aliquot:</b> 0.109 g	<b>Instrument:</b> 1245
<b>Data File:</b> S0374988007_AM.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Am-05	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485928		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.0961	pCi/g	+/-0.270	0.271	0.288	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	13.8	19.6	pCi/g	70.3	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988007	<b>Date Collected:</b> 06/08/2015 13:22	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 18.2
<b>Client ID:</b> B30RH8	<b>Method:</b> PUIISO_PLATE_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485930	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:25	<b>Aliquot:</b> 0.109 g	<b>Instrument:</b> 1095
<b>Data File:</b> S0374988007_PU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Pu-11-	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485930		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I3981-16-3	Plutonium-238	U	-0.0329	pCi/g	+/-0.145	0.146	0.379	1.00
OER-100-70	Plutonium-239/240	U	0.0192	pCi/g	+/-0.200	0.201	0.418	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	14.7	18.1	pCi/g	81.5	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988007	<b>Date Collected:</b> 06/08/2015 13:22	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 18.2
<b>Client ID:</b> B30RH8	<b>Method:</b> UIISO_IE_PRECIP_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485931	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:18	<b>Aliquot:</b> 0.109 g	<b>Instrument:</b> 1134
<b>Data File:</b> S0374988007_UU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, U-02-R	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485931		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 13968-55-3/139	Uranium-233/234		0.840	pCi/g	+/-0.529	0.546	0.499	1.00
15117-96-1/13982	Uranium-235/236	U	0.00	pCi/g	+/-0.177	0.178	0.264	1.00
7440-61-1	Uranium-238	U	0.214	pCi/g	+/-0.281	0.283	0.214	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	19.0	19.5	pCi/g	97.4	(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).

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988007	<b>Date Collected:</b> 06/08/2015 13:22	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 18.2
<b>Client ID:</b> B30RH8	<b>Method:</b> SRISO_SEP_PRECIP_GPC	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485858	<b>Analyst:</b> KSD1	<b>SOP Ref:</b> GL-RAD-A-004
<b>Run Date:</b> 06/25/2015 09:10	<b>Aliquot:</b> 1 g	<b>Instrument:</b> PIC7A
<b>Data File:</b> S1485858r2.xls	<b>Prep Method:</b> EPA 905.0 Modified/DOE RP5	<b>Count Time:</b> 60 min
<b>Prep Batch:</b> 1485858		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/19/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90	U	0.407	pCi/g	+/-0.275	0.284	0.423	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.00	8.10	mg	86.4	(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).

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Certificate of Analysis  
Sample SummarySDG Number: GEL374988  
Lab Sample ID: 374988007Client: CPRC001  
Date Collected: 06/08/2015 13:22  
Date Received: 06/12/2015 09:10Project: CPRC0F15027  
Matrix: SOIL  
%Moisture: 18.2Client ID: B30RH8  
Batch ID: 1485712  
Run Date: 06/16/2015 08:09  
Data File: G374988007.CNF;1  
Prep Batch: 1485712  
Prep Date: 06/15/2015 00:00Method: GAMMA\_GS  
Analyst: MXR1  
Aliquot: 21.052 g  
Prep Method: DOE HASL 300, 4.5.2.3/Ga-01Prep Basis: Dry Weight  
SOP Ref: GL-RAD-A-013  
Instrument: GAM40  
Count Time: 240 min  
Prep SOP Ref: GL-RAD-A-021

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	-0.00348	pCi/g	+/-0.050	0.050	0.0921	0.100
10198-40-0	Cobalt-60	U	0.0188	pCi/g	+/-0.0582	0.0588	0.117	0.050
14683-23-9	Europium-152	U	-0.0372	pCi/g	+/-0.126	0.127	0.204	0.100
15585-10-1	Europium-154	U	-0.0205	pCi/g	+/-0.161	0.162	0.265	0.100
14391-16-3	Europium-155	U	0.00152	pCi/g	+/-0.128	0.128	0.221	0.100

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988007	<b>Date Collected:</b> 06/08/2015 13:22	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 18.2
<b>Client ID:</b> B30RH8		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485720	<b>Method:</b> I129LL_SEP_LEPS_GS	<b>SOP Ref:</b> GL-RAD-A-006
<b>Run Date:</b> 06/22/2015 08:11	<b>Analyst:</b> MJH1	<b>Instrument:</b> XRAY3
<b>Data File:</b> I374988007.CNF;1	<b>Aliquot:</b> 1.052 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485720	<b>Prep Method:</b> DOE EML HASL-300,I-01 M	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	0.0486	pCi/g	+/-0.469	0.470	1.17	2.00

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988007	<b>Date Collected:</b> 06/08/2015 13:22	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 18.2
<b>Client ID:</b> B30RH8		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485659	<b>Method:</b> TC99_EIE_LSC	<b>SOP Ref:</b> GL-RAD-A-059
<b>Run Date:</b> 06/23/2015 16:13	<b>Analyst:</b> MYM1	<b>Instrument:</b> LSCBLUE
<b>Data File:</b> E1485659.xls	<b>Aliquot:</b> 2.08 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485659	<b>Prep Method:</b> DOE EML HASL-300, Tc-02-	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-0.0926	pCi/g	+/-0.823	0.823	1.43	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	55300	58500	CPM	94.6	(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).

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988007	<b>Date Collected:</b> 06/08/2015 13:22	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 18.2
<b>Client ID:</b> B30RH8		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1486494	<b>Method:</b> C14_LSC	<b>SOP Ref:</b> GL-RAD-A-003
<b>Run Date:</b> 06/21/2015 15:17	<b>Analyst:</b> EXK2	<b>Instrument:</b> LSCTEAL
<b>Data File:</b> C1486494.xls	<b>Aliquot:</b> 0.693 g	<b>Count Time:</b> 40 min
<b>Prep Batch:</b> 1486494	<b>Prep Method:</b> EPA EERF C-01 Modified	
<b>Prep Date:</b> 06/20/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	0.654	pCi/g	+/-1.47	1.47	2.51	5.00

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988007	<b>Date Collected:</b> 06/08/2015 13:22	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 18.2
<b>Client ID:</b> B30RH8		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1486509	<b>Method:</b> TRITIUM_DIST_LSC	<b>SOP Ref:</b> GL-RAD-A-002
<b>Run Date:</b> 06/22/2015 18:57	<b>Analyst:</b> GXR1	<b>Instrument:</b> LSCSILVER
<b>Data File:</b> T1486509.xls	<b>Aliquot:</b> 1.603 g	<b>Count Time:</b> 20 min
<b>Prep Batch:</b> 1486509	<b>Prep Method:</b> EPA 906.0 Modified	
<b>Prep Date:</b> 06/22/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	3.12	pCi/g	+/-13.6	13.7	24.1	30.0

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

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

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988007	<b>Date Collected:</b> 06/08/2015 13:22	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 18.2
<b>Client ID:</b> B30RH8		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1485598	<b>Method:</b> ASTM D 2216 (Modified)	<b>SOP Ref:</b> GL-OA-E-020
<b>Run Date:</b> 06/12/2015 15:20	<b>Analyst:</b> CXC1	<b>Instrument:</b> BALHD2000D
<b>Data File:</b>		<b>Count Time:</b>
<b>Prep Batch:</b> 1485598		
<b>Prep Date:</b> 06/12/2015 15:20		

CAS No.	Parmname	Qual	Result	Units	MDC
	Moisture		18.2	percent +/-	

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988008	<b>Date Collected:</b> 06/08/2015 13:40	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 17.1
<b>Client ID:</b> B30RJ0	<b>Method:</b> AMCMISO_EIE_PREC_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485928	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 16:19	<b>Aliquot:</b> 0.101 g	<b>Instrument:</b> 1246
<b>Data File:</b> S0374988008_AM.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Am-05	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485928		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.179	pCi/g	+/-0.353	0.354	0.489	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	15.4	21.2	pCi/g	72.7	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988008	<b>Date Collected:</b> 06/08/2015 13:40	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 17.1
<b>Client ID:</b> B30RJ0	<b>Method:</b> PUIISO_PLATE_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485930	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:25	<b>Aliquot:</b> 0.101 g	<b>Instrument:</b> 1096
<b>Data File:</b> S0374988008_PU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Pu-11-	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485930		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I3981-16-3	Plutonium-238	U	-0.119	pCi/g	+/-0.168	0.169	0.551	1.00
OER-100-70	Plutonium-239/240	U	0.162	pCi/g	+/-0.286	0.287	0.434	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	16.0	19.5	pCi/g	82.0	(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).

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988008	<b>Date Collected:</b> 06/08/2015 13:40	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 17.1
<b>Client ID:</b> B30RJ0	<b>Method:</b> UIISO_IE_PRECIP_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485931	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:18	<b>Aliquot:</b> 0.101 g	<b>Instrument:</b> 1135
<b>Data File:</b> S0374988008_UU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, U-02-R	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485931		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 13968-55-3/139	Uranium-233/234	U	0.284	pCi/g	+/-0.359	0.362	0.446	1.00
15117-96-1/13982	Uranium-235/236	U	0.0757	pCi/g	+/-0.284	0.284	0.477	1.00
7440-61-1	Uranium-238	U	0.264	pCi/g	+/-0.361	0.364	0.492	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	19.4	21.0	pCi/g	92.2	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988008	<b>Date Collected:</b> 06/08/2015 13:40	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 17.1
<b>Client ID:</b> B30RJ0	<b>Method:</b> SRISO_SEP_PRECIP_GPC	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485858	<b>Analyst:</b> KSD1	<b>SOP Ref:</b> GL-RAD-A-004
<b>Run Date:</b> 06/25/2015 12:06	<b>Aliquot:</b> 1.007 g	<b>Instrument:</b> PIC2C
<b>Data File:</b> S1485858r2.xls	<b>Prep Method:</b> EPA 905.0 Modified/DOE RP5	<b>Count Time:</b> 60 min
<b>Prep Batch:</b> 1485858		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/19/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90	U	0.216	pCi/g	+/-0.203	0.206	0.327	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.10	8.10	mg	87.7	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

SDG Number: GEL374988  
Lab Sample ID: 374988008  
  
Client ID: B30RJ0  
Batch ID: 1485712  
Run Date: 06/16/2015 08:01  
Data File: G374988008.CNF;1  
Prep Batch: 1485712  
Prep Date: 06/15/2015 00:00

Client: CPRC001  
Date Collected: 06/08/2015 13:40  
Date Received: 06/12/2015 09:10  
  
Method: GAMMA\_GS  
Analyst: MXR1  
Aliquot: 19.039 g  
Prep Method: DOE HASL 300, 4.5.2.3/Ga-01

Project: CPRC0F15027  
Matrix: SOIL  
%Moisture: 17.1  
  
Prep Basis: Dry Weight  
SOP Ref: GL-RAD-A-013  
Instrument: GAM44  
Count Time: 240 min  
Prep SOP Ref: GL-RAD-A-021

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.0126	pCi/g	+/-0.0638	0.064	0.104	0.100
10198-40-0	Cobalt-60	U	-0.0604	pCi/g	+/-0.067	0.0727	0.111	0.050
14683-23-9	Europium-152	U	0.0109	pCi/g	+/-0.147	0.147	0.233	0.100
15585-10-1	Europium-154	U	-0.0149	pCi/g	+/-0.205	0.206	0.330	0.100
14391-16-3	Europium-155	U	-0.0276	pCi/g	+/-0.134	0.135	0.232	0.100

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988008	<b>Date Collected:</b> 06/08/2015 13:40	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 17.1
<b>Client ID:</b> B30RJ0		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485720	<b>Method:</b> I129LL_SEP_LEPS_GS	<b>SOP Ref:</b> GL-RAD-A-006
<b>Run Date:</b> 06/22/2015 08:23	<b>Analyst:</b> MJH1	<b>Instrument:</b> XRAY4
<b>Data File:</b> I374988008.CNF;1	<b>Aliquot:</b> 1.069 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485720	<b>Prep Method:</b> DOE EML HASL-300,I-01 M	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	0.404	pCi/g	+/-0.841	0.862	2.04	2.00

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

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

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988008	<b>Date Collected:</b> 06/08/2015 13:40	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 17.1
<b>Client ID:</b> B30RJ0		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485659	<b>Method:</b> TC99_EIE_LSC	<b>SOP Ref:</b> GL-RAD-A-059
<b>Run Date:</b> 06/23/2015 16:45	<b>Analyst:</b> MYM1	<b>Instrument:</b> LSCBLUE
<b>Data File:</b> E1485659.xls	<b>Aliquot:</b> 2.034 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485659	<b>Prep Method:</b> DOE EML HASL-300, Tc-02-	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	0.328	pCi/g	+/-0.816	0.817	1.39	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	56700	58500	CPM	97.0	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988008	<b>Date Collected:</b> 06/08/2015 13:40	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 17.1
<b>Client ID:</b> B30RJ0		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1486494	<b>Method:</b> C14_LSC	<b>SOP Ref:</b> GL-RAD-A-003
<b>Run Date:</b> 06/21/2015 15:58	<b>Analyst:</b> EXK2	<b>Instrument:</b> LSCTEAL
<b>Data File:</b> C1486494.xls	<b>Aliquot:</b> 0.695 g	<b>Count Time:</b> 40 min
<b>Prep Batch:</b> 1486494	<b>Prep Method:</b> EPA EERF C-01 Modified	
<b>Prep Date:</b> 06/20/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-0.69	pCi/g	+/-1.43	1.43	2.51	5.00

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988008	<b>Date Collected:</b> 06/08/2015 13:40	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 17.1
<b>Client ID:</b> B30RJ0		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1486509	<b>Method:</b> TRITIUM_DIST_LSC	<b>SOP Ref:</b> GL-RAD-A-002
<b>Run Date:</b> 06/22/2015 19:18	<b>Analyst:</b> GXR1	<b>Instrument:</b> LSCSILVER
<b>Data File:</b> T1486509.xls	<b>Aliquot:</b> 1.123 g	<b>Count Time:</b> 20 min
<b>Prep Batch:</b> 1486509	<b>Prep Method:</b> EPA 906.0 Modified	
<b>Prep Date:</b> 06/22/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-10.3	pCi/g	+/-12.8	12.8	24.5	30.0

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

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

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988008	<b>Date Collected:</b> 06/08/2015 13:40	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 17.1
<b>Client ID:</b> B30RJ0		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1485598	<b>Method:</b> ASTM D 2216 (Modified)	<b>SOP Ref:</b> GL-OA-E-020
<b>Run Date:</b> 06/12/2015 15:20	<b>Analyst:</b> CXC1	<b>Instrument:</b> BALHD2000D
<b>Data File:</b>		<b>Count Time:</b>
<b>Prep Batch:</b> 1485598		
<b>Prep Date:</b> 06/12/2015 15:20		

CAS No.	Parmname	Qual	Result	Units	MDC	
	Moisture		17.1	percent +/-		
<b>Surrogate/Tracer recovery</b>		<b>Result</b>	<b>Nominal</b>	<b>Units</b>	<b>Recovery%</b>	<b>Acceptable Limits</b>

**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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988009	<b>Date Collected:</b> 06/08/2015 13:04	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 7.1
<b>Client ID:</b> B30RH6	<b>Method:</b> AMCMISO_EIE_PREC_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485928	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 16:19	<b>Aliquot:</b> 0.108 g	<b>Instrument:</b> 1247
<b>Data File:</b> S0374988009_AM.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Am-05	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485928		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.0954	pCi/g	+/-0.268	0.268	0.286	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	14.0	19.8	pCi/g	70.5	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988009	<b>Date Collected:</b> 06/08/2015 13:04	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 7.1
<b>Client ID:</b> B30RH6	<b>Method:</b> PUIISO_PLATE_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485930	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/23/2015 15:20	<b>Aliquot:</b> 0.108 g	<b>Instrument:</b> 1085
<b>Data File:</b> S0374988009_PU.2A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Pu-11-	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485930		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.0355	pCi/g	+/-0.197	0.197	0.378	1.00
OER-100-70	Plutonium-239/240		0.701	pCi/g	+/-0.467	0.476	0.416	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	14.2	18.2	pCi/g	78.0	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988009	<b>Date Collected:</b> 06/08/2015 13:04	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 7.1
<b>Client ID:</b> B30RH6	<b>Method:</b> UIISO_IE_PRECIP_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485931	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:18	<b>Aliquot:</b> 0.108 g	<b>Instrument:</b> 1136
<b>Data File:</b> S0374988009_UU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, U-02-R	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485931		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 13968-55-3/139	Uranium-233/234	U	0.400	pCi/g	+/-0.419	0.425	0.522	1.00
15117-96-1/13982	Uranium-235/236	U	-0.0235	pCi/g	+/-0.203	0.203	0.470	1.00
7440-61-1	Uranium-238		0.615	pCi/g	+/-0.469	0.480	0.380	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	16.7	19.7	pCi/g	85.1	(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).

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988009	<b>Date Collected:</b> 06/08/2015 13:04	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 7.1
<b>Client ID:</b> B30RH6	<b>Method:</b> SRISO_SEP_PRECIP_GPC	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485858	<b>Analyst:</b> KSD1	<b>SOP Ref:</b> GL-RAD-A-004
<b>Run Date:</b> 06/29/2015 07:00	<b>Aliquot:</b> 1.001 g	<b>Instrument:</b> PIC4B
<b>Data File:</b> S1485858r2.xls	<b>Prep Method:</b> EPA 905.0 Modified/DOE RP5	<b>Count Time:</b> 60 min
<b>Prep Batch:</b> 1485858		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/19/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90		16.4	pCi/g	+/-0.860	3.09	0.396	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.10	8.10	mg	87.7	(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).

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**Certificate of Analysis**  
**Sample Summary**

SDG Number: GEL374988  
Lab Sample ID: 374988009  
  
Client ID: B30RH6  
Batch ID: 1485712  
Run Date: 06/16/2015 08:08  
Data File: G374988009.CNF;1  
Prep Batch: 1485712  
Prep Date: 06/15/2015 00:00

Client: CPRC001  
Date Collected: 06/08/2015 13:04  
Date Received: 06/12/2015 09:10  
  
Method: GAMMA\_GS  
Analyst: MXR1  
Aliquot: 18.057 g  
Prep Method: DOE HASL 300, 4.5.2.3/Ga-01

Project: CPRC0F15027  
Matrix: SOIL  
%Moisture: 7.1  
  
Prep Basis: Dry Weight  
SOP Ref: GL-RAD-A-013  
Instrument: GAM03  
Count Time: 240 min  
Prep SOP Ref: GL-RAD-A-021

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	-0.0062	pCi/g	+/-0.0685	0.0686	0.121	0.100
10198-40-0	Cobalt-60	U	0.0261	pCi/g	+/-0.0762	0.0771	0.151	0.050
14683-23-9	Europium-152	U	0.182	pCi/g	+/-0.189	0.207	0.311	0.100
15585-10-1	Europium-154	U	-0.0252	pCi/g	+/-0.234	0.234	0.421	0.100
14391-16-3	Europium-155	U	0.141	pCi/g	+/-0.227	0.236	0.288	0.100

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

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

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988009	<b>Date Collected:</b> 06/08/2015 13:04	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 7.1
<b>Client ID:</b> B30RH6		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485720	<b>Method:</b> I129LL_SEP_LEPS_GS	<b>SOP Ref:</b> GL-RAD-A-006
<b>Run Date:</b> 06/22/2015 08:23	<b>Analyst:</b> MJH1	<b>Instrument:</b> GAM21
<b>Data File:</b> I374988009.CNF;1	<b>Aliquot:</b> 1.037 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485720	<b>Prep Method:</b> DOE EML HASL-300,I-01 M	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I5046-84-1	Iodine-129	U	-0.0416	pCi/g	+/-0.778	0.778	1.56	2.00

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988009	<b>Date Collected:</b> 06/08/2015 13:04	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 7.1
<b>Client ID:</b> B30RH6		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485659	<b>Method:</b> TC99_EIE_LSC	<b>SOP Ref:</b> GL-RAD-A-059
<b>Run Date:</b> 06/23/2015 17:18	<b>Analyst:</b> MYM1	<b>Instrument:</b> LSCBLUE
<b>Data File:</b> E1485659.xls	<b>Aliquot:</b> 2.056 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485659	<b>Prep Method:</b> DOE EML HASL-300, Tc-02-	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-0.599	pCi/g	+/-0.788	0.788	1.39	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	56800	58500	CPM	97.0	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988009	<b>Date Collected:</b> 06/08/2015 13:04	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 7.1
<b>Client ID:</b> B30RH6		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1486494	<b>Method:</b> C14_LSC	<b>SOP Ref:</b> GL-RAD-A-003
<b>Run Date:</b> 06/21/2015 16:39	<b>Analyst:</b> EXK2	<b>Instrument:</b> LSCTEAL
<b>Data File:</b> C1486494.xls	<b>Aliquot:</b> 0.551 g	<b>Count Time:</b> 40 min
<b>Prep Batch:</b> 1486494	<b>Prep Method:</b> EPA EERF C-01 Modified	
<b>Prep Date:</b> 06/20/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-1.12	pCi/g	+/-1.79	1.79	3.15	5.00

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988009	<b>Date Collected:</b> 06/08/2015 13:04	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 7.1
<b>Client ID:</b> B30RH6		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1486509	<b>Method:</b> TRITIUM_DIST_LSC	<b>SOP Ref:</b> GL-RAD-A-002
<b>Run Date:</b> 06/22/2015 19:40	<b>Analyst:</b> GXR1	<b>Instrument:</b> LSCSILVER
<b>Data File:</b> T1486509.xls	<b>Aliquot:</b> 1.097 g	<b>Count Time:</b> 20 min
<b>Prep Batch:</b> 1486509	<b>Prep Method:</b> EPA 906.0 Modified	
<b>Prep Date:</b> 06/22/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		48.2	pCi/g	+/-17.4	20.5	25.3	30.0

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

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

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988009	<b>Date Collected:</b> 06/08/2015 13:04	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 7.1
<b>Client ID:</b> B30RH6		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1485598	<b>Method:</b> ASTM D 2216 (Modified)	<b>SOP Ref:</b> GL-OA-E-020
<b>Run Date:</b> 06/12/2015 15:20	<b>Analyst:</b> CXC1	<b>Instrument:</b> BALHD2000D
<b>Data File:</b>		<b>Count Time:</b>
<b>Prep Batch:</b> 1485598		
<b>Prep Date:</b> 06/12/2015 15:20		

CAS No.	Parmname	Qual	Result	Units	MDC	
	Moisture		7.05	percent +/-		
<b>Surrogate/Tracer recovery</b>		<b>Result</b>	<b>Nominal</b>	<b>Units</b>	<b>Recovery%</b>	<b>Acceptable Limits</b>

**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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

SDG Number: GEL374988	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 374988010	Date Collected: 06/08/2015 10:14	Matrix: SOIL
	Date Received: 06/12/2015 09:10	%Moisture: 3.8
Client ID: B30RF9	Method: AMCMISO_EIE_PREC_AEA	Prep Basis: Dry Weight
Batch ID: 1485928	Analyst: MXS2	SOP Ref: GL-RAD-A-011
Run Date: 06/20/2015 16:19	Aliquot: 0.103 g	Instrument: 1248
Data File: S0374988010_AM.1A.gcnf	Prep Method: DOE EML HASL-300, Am-05	Count Time: 240 min
Prep Batch: 1485928		Prep SOP Ref: GL-RAD-A-021
Prep Date: 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	-0.0236	pCi/g	+/-0.203	0.204	0.471	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	15.1	20.8	pCi/g	72.7	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988010	<b>Date Collected:</b> 06/08/2015 10:14	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.8
<b>Client ID:</b> B30RF9	<b>Method:</b> PUIISO_PLATE_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485930	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:25	<b>Aliquot:</b> 0.103 g	<b>Instrument:</b> 1099
<b>Data File:</b> S0374988010_PU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Pu-11-	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485930		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	-0.0957	pCi/g	+/-0.154	0.155	0.491	1.00
OER-100-70	Plutonium-239/240	U	0.00531	pCi/g	+/-0.244	0.244	0.537	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	14.8	19.1	pCi/g	77.4	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988010	<b>Date Collected:</b> 06/08/2015 10:14	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.8
<b>Client ID:</b> B30RF9	<b>Method:</b> UIISO_IE_PRECIP_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485931	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:18	<b>Aliquot:</b> 0.103 g	<b>Instrument:</b> 1137
<b>Data File:</b> S0374988010_UU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, U-02-R	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485931		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 13968-55-3/139	Uranium-233/234		0.708	pCi/g	+/-0.501	0.514	0.466	1.00
15117-96-1/13982	Uranium-235/236	U	0.00	pCi/g	+/-0.190	0.191	0.283	1.00
7440-61-1	Uranium-238	U	0.137	pCi/g	+/-0.312	0.313	0.535	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	19.7	20.6	pCi/g	95.5	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988010	<b>Date Collected:</b> 06/08/2015 10:14	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.8
<b>Client ID:</b> B30RF9	<b>Method:</b> SRISO_SEP_PRECIP_GPC	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485858	<b>Analyst:</b> KSD1	<b>SOP Ref:</b> GL-RAD-A-004
<b>Run Date:</b> 06/29/2015 07:00	<b>Aliquot:</b> 1.008 g	<b>Instrument:</b> PIC4D
<b>Data File:</b> S1485858r2.xls	<b>Prep Method:</b> EPA 905.0 Modified/DOE RP5	<b>Count Time:</b> 60 min
<b>Prep Batch:</b> 1485858		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/19/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90		11.9	pCi/g	+/-0.749	2.24	0.431	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.10	8.10	mg	87.7	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

SDG Number: GEL374988  
 Lab Sample ID: 374988010  
 Client ID: B30RF9  
 Batch ID: 1485712  
 Run Date: 06/16/2015 08:57  
 Data File: G374988010.CNF;1  
 Prep Batch: 1485712  
 Prep Date: 06/15/2015 00:00

Client: CPRC001  
 Date Collected: 06/08/2015 10:14  
 Date Received: 06/12/2015 09:10  
 Method: GAMMA\_GS  
 Analyst: MXR1  
 Aliquot: 18.704 g  
 Prep Method: DOE HASL 300, 4.5.2.3/Ga-01

Project: CPRC0F15027  
 Matrix: SOIL  
 %Moisture: 3.8  
 Prep Basis: Dry Weight  
 SOP Ref: GL-RAD-A-013  
 Instrument: GAM39  
 Count Time: 240 min  
 Prep SOP Ref: GL-RAD-A-021

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.0178	pCi/g	+/-0.0874	0.0877	0.156	0.100
10198-40-0	Cobalt-60	U	-0.00555	pCi/g	+/-0.0804	0.0804	0.148	0.050
14683-23-9	Europium-152	U	0.174	pCi/g	+/-0.194	0.210	0.324	0.100
15585-10-1	Europium-154	U	-0.102	pCi/g	+/-0.272	0.276	0.474	0.100
14391-16-3	Europium-155	U	-0.0173	pCi/g	+/-0.133	0.133	0.232	0.100

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988010	<b>Date Collected:</b> 06/08/2015 10:14	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.8
<b>Client ID:</b> B30RF9		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485720	<b>Method:</b> I129LL_SEP_LEPS_GS	<b>SOP Ref:</b> GL-RAD-A-006
<b>Run Date:</b> 06/22/2015 08:28	<b>Analyst:</b> MJH1	<b>Instrument:</b> XRAY6
<b>Data File:</b> I374988010.CNF;1	<b>Aliquot:</b> 1.005 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485720	<b>Prep Method:</b> DOE EML HASL-300,I-01 M	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.624	pCi/g	+/-0.864	0.911	0.761	2.00

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988010	<b>Date Collected:</b> 06/08/2015 10:14	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.8
<b>Client ID:</b> B30RF9		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485659	<b>Method:</b> TC99_EIE_LSC	<b>SOP Ref:</b> GL-RAD-A-059
<b>Run Date:</b> 06/23/2015 17:50	<b>Analyst:</b> MYM1	<b>Instrument:</b> LSCBLUE
<b>Data File:</b> E1485659.xls	<b>Aliquot:</b> 2.071 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485659	<b>Prep Method:</b> DOE EML HASL-300, Tc-02-	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	0.022	pCi/g	+/-0.815	0.815	1.41	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	56000	58500	CPM	95.7	(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).

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988010	<b>Date Collected:</b> 06/08/2015 10:14	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.8
<b>Client ID:</b> B30RF9		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1486494	<b>Method:</b> C14_LSC	<b>SOP Ref:</b> GL-RAD-A-003
<b>Run Date:</b> 06/21/2015 17:20	<b>Analyst:</b> EXK2	<b>Instrument:</b> LSCTEAL
<b>Data File:</b> C1486494.xls	<b>Aliquot:</b> 0.524 g	<b>Count Time:</b> 40 min
<b>Prep Batch:</b> 1486494	<b>Prep Method:</b> EPA EERF C-01 Modified	
<b>Prep Date:</b> 06/20/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-1.05	pCi/g	+/-1.88	1.88	3.31	5.00

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988010	<b>Date Collected:</b> 06/08/2015 10:14	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.8
<b>Client ID:</b> B30RF9		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1486509	<b>Method:</b> TRITIUM_DIST_LSC	<b>SOP Ref:</b> GL-RAD-A-002
<b>Run Date:</b> 06/22/2015 20:01	<b>Analyst:</b> GXR1	<b>Instrument:</b> LSCSILVER
<b>Data File:</b> T1486509.xls	<b>Aliquot:</b> 1.036 g	<b>Count Time:</b> 20 min
<b>Prep Batch:</b> 1486509	<b>Prep Method:</b> EPA 906.0 Modified	
<b>Prep Date:</b> 06/22/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		118	pCi/g	+/-21.6	34.4	25.9	30.0

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

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

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988010	<b>Date Collected:</b> 06/08/2015 10:14	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.8
<b>Client ID:</b> B30RF9		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1485598	<b>Method:</b> ASTM D 2216 (Modified)	<b>SOP Ref:</b> GL-OA-E-020
<b>Run Date:</b> 06/12/2015 15:20	<b>Analyst:</b> CXC1	<b>Instrument:</b> BALHD2000D
<b>Data File:</b>		<b>Count Time:</b>
<b>Prep Batch:</b> 1485598		
<b>Prep Date:</b> 06/12/2015 15:20		

CAS No.	Parmname	Qual	Result	Units	MDC
	Moisture		3.80	percent +/-	

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

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

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988011	<b>Date Collected:</b> 05/19/2015 09:13	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2
<b>Client ID:</b> B30RD4	<b>Method:</b> AMCMISO_EIE_PREC_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485928	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 16:19	<b>Aliquot:</b> 0.1 g	<b>Instrument:</b> 1249
<b>Data File:</b> S0374988011_AM.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Am-05	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485928		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	-0.0697	pCi/g	+/-0.210	0.211	0.591	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	16.1	21.4	pCi/g	75.2	(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).

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988011	<b>Date Collected:</b> 05/19/2015 09:13	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2
<b>Client ID:</b> B30RD4	<b>Method:</b> PUIISO_PLATE_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485930	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:25	<b>Aliquot:</b> 0.1 g	<b>Instrument:</b> 1100
<b>Data File:</b> S0374988011_PU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Pu-11-	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485930		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	-0.155	pCi/g	+/-0.195	0.196	0.653	1.00
OER-100-70	Plutonium-239/240	U	0.042	pCi/g	+/-0.233	0.234	0.447	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	14.6	19.7	pCi/g	74.3	(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).

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988011	<b>Date Collected:</b> 05/19/2015 09:13	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2
<b>Client ID:</b> B30RD4	<b>Method:</b> UIISO_IE_PRECIP_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485931	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:18	<b>Aliquot:</b> 0.1 g	<b>Instrument:</b> 1138
<b>Data File:</b> S0374988011_UU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, U-02-R	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485931		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 13968-55-3/139	Uranium-233/234	U	0.0218	pCi/g	+/-0.228	0.228	0.476	1.00
15117-96-1/13982	Uranium-235/236	U	0.169	pCi/g	+/-0.333	0.334	0.461	1.00
7440-61-1	Uranium-238	U	0.352	pCi/g	+/-0.379	0.383	0.431	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	20.0	21.2	pCi/g	94.2	(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).

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988011	<b>Date Collected:</b> 05/19/2015 09:13	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2
<b>Client ID:</b> B30RD4	<b>Method:</b> SRISO_SEP_PRECIP_GPC	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485858	<b>Analyst:</b> KSD1	<b>SOP Ref:</b> GL-RAD-A-004
<b>Run Date:</b> 06/29/2015 07:00	<b>Aliquot:</b> 1.003 g	<b>Instrument:</b> PIC2A
<b>Data File:</b> S1485858r2.xls	<b>Prep Method:</b> EPA 905.0 Modified/DOE RP5	<b>Count Time:</b> 60 min
<b>Prep Batch:</b> 1485858		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/19/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90		1.85	pCi/g	+/-0.328	0.472	0.286	1.00

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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

SDG Number: GEL374988  
 Lab Sample ID: 374988011  
 Client ID: B30RD4  
 Batch ID: 1485712  
 Run Date: 06/17/2015 06:17  
 Data File: G374988011.CNF;1  
 Prep Batch: 1485712  
 Prep Date: 06/15/2015 00:00

Client: CPRC001  
 Date Collected: 05/19/2015 09:13  
 Date Received: 06/12/2015 09:10  
 Method: GAMMA\_GS  
 Analyst: MXR1  
 Aliquot: 19.679 g  
 Prep Method: DOE HASL 300, 4.5.2.3/Ga-01

Project: CPRC0F15027  
 Matrix: SOIL  
 %Moisture: 2  
 Prep Basis: Dry Weight  
 SOP Ref: GL-RAD-A-013  
 Instrument: GAM13  
 Count Time: 240 min  
 Prep SOP Ref: GL-RAD-A-021

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	-0.0959	pCi/g	+/-0.102	0.111	0.172	0.100
10198-40-0	Cobalt-60	U	-0.0232	pCi/g	+/-0.101	0.101	0.179	0.050
14683-23-9	Europium-152	U	0.0139	pCi/g	+/-0.293	0.293	0.424	0.100
15585-10-1	Europium-154	U	0.0727	pCi/g	+/-0.328	0.330	0.599	0.100
14391-16-3	Europium-155	U	-0.0933	pCi/g	+/-0.201	0.206	0.305	0.100

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

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

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988011	<b>Date Collected:</b> 05/19/2015 09:13	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2
<b>Client ID:</b> B30RD4		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485720	<b>Method:</b> I129LL_SEP_LEPS_GS	<b>SOP Ref:</b> GL-RAD-A-006
<b>Run Date:</b> 06/22/2015 08:43	<b>Analyst:</b> MJH1	<b>Instrument:</b> XRAY1
<b>Data File:</b> I374988011.CNF;1	<b>Aliquot:</b> 1.004 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485720	<b>Prep Method:</b> DOE EML HASL-300,I-01 M	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	0.265	pCi/g	+/-0.959	0.967	2.02	2.00

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

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

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988011	<b>Date Collected:</b> 05/19/2015 09:13	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2
<b>Client ID:</b> B30RD4	<b>Method:</b> TC99_EIE_LSC	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485659	<b>Analyst:</b> MYM1	<b>SOP Ref:</b> GL-RAD-A-059
<b>Run Date:</b> 06/23/2015 18:22	<b>Aliquot:</b> 2.066 g	<b>Instrument:</b> LSCBLUE
<b>Data File:</b> E1485659.xls	<b>Prep Method:</b> DOE EML HASL-300, Tc-02-	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485659		
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	0.561	pCi/g	+/-0.836	0.839	1.41	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	55700	58500	CPM	95.2	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988011	<b>Date Collected:</b> 05/19/2015 09:13	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2
<b>Client ID:</b> B30RD4		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1486494	<b>Method:</b> C14_LSC	<b>SOP Ref:</b> GL-RAD-A-003
<b>Run Date:</b> 06/21/2015 18:02	<b>Analyst:</b> EXK2	<b>Instrument:</b> LSCTEAL
<b>Data File:</b> C1486494.xls	<b>Aliquot:</b> 0.508 g	<b>Count Time:</b> 40 min
<b>Prep Batch:</b> 1486494	<b>Prep Method:</b> EPA EERF C-01 Modified	
<b>Prep Date:</b> 06/20/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-1.11	pCi/g	+/-1.93	1.93	3.40	5.00

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

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

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988011	<b>Date Collected:</b> 05/19/2015 09:13	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2
<b>Client ID:</b> B30RD4	<b>Method:</b> TRITIUM_DIST_LSC	<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1486509	<b>Analyst:</b> GXR1	<b>SOP Ref:</b> GL-RAD-A-002
<b>Run Date:</b> 06/22/2015 20:23	<b>Aliquot:</b> 1.089 g	<b>Instrument:</b> LSCSILVER
<b>Data File:</b> T1486509.xls	<b>Prep Method:</b> EPA 906.0 Modified	<b>Count Time:</b> 20 min
<b>Prep Batch:</b> 1486509		
<b>Prep Date:</b> 06/22/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-2.23	pCi/g	+/-13.9	13.9	25.4	30.0

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

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

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988011	<b>Date Collected:</b> 05/19/2015 09:13	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 2
<b>Client ID:</b> B30RD4		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1485598	<b>Method:</b> ASTM D 2216 (Modified)	<b>SOP Ref:</b> GL-OA-E-020
<b>Run Date:</b> 06/12/2015 15:20	<b>Analyst:</b> CXC1	<b>Instrument:</b> BALHD2000D
<b>Data File:</b>		<b>Count Time:</b>
<b>Prep Batch:</b> 1485598		
<b>Prep Date:</b> 06/12/2015 15:20		

CAS No.	Parmname	Qual	Result	Units	MDC
	Moisture		1.96	percent +/-	

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988012	<b>Date Collected:</b> 06/08/2015 10:14	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.9
<b>Client ID:</b> B30RH0	<b>Method:</b> AMCMISO_EIE_PREC_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485928	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 16:19	<b>Aliquot:</b> 0.108 g	<b>Instrument:</b> 1250
<b>Data File:</b> S0374988012_AM.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Am-05	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485928		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.0261	pCi/g	+/-0.273	0.273	0.570	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	14.2	19.8	pCi/g	71.7	(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).

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988012	<b>Date Collected:</b> 06/08/2015 10:14	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.9
<b>Client ID:</b> B30RH0	<b>Method:</b> PUIISO_PLATE_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485930	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:17	<b>Aliquot:</b> 0.108 g	<b>Instrument:</b> 1211
<b>Data File:</b> S0374988012_PU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Pu-11-	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485930		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I3981-16-3	Plutonium-238	U	-0.0139	pCi/g	+/-0.322	0.322	0.728	1.00
OER-100-70	Plutonium-239/240	U	-0.0764	pCi/g	+/-0.329	0.330	0.800	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	15.0	18.2	pCi/g	82.1	(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).

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988012	<b>Date Collected:</b> 06/08/2015 10:14	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.9
<b>Client ID:</b> B30RH0	<b>Method:</b> UIISO_IE_PRECIP_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485931	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/23/2015 15:20	<b>Aliquot:</b> 0.108 g	<b>Instrument:</b> 1004
<b>Data File:</b> S0374988012_UU.2A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, U-02-R	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485931		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 13968-55-3/139	Uranium-233/234	U	0.0723	pCi/g	+/-0.247	0.247	0.458	1.00
15117-96-1/13982	Uranium-235/236	U	0.172	pCi/g	+/-0.294	0.296	0.258	1.00
7440-61-1	Uranium-238	U	0.331	pCi/g	+/-0.337	0.341	0.333	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	19.1	19.7	pCi/g	97.3	(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).

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988012	<b>Date Collected:</b> 06/08/2015 10:14	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.9
<b>Client ID:</b> B30RH0	<b>Method:</b> SRISO_SEP_PRECIP_GPC	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485858	<b>Analyst:</b> KSD1	<b>SOP Ref:</b> GL-RAD-A-004
<b>Run Date:</b> 06/29/2015 07:00	<b>Aliquot:</b> 1.009 g	<b>Instrument:</b> PIC3C
<b>Data File:</b> S1485858r2.xls	<b>Prep Method:</b> EPA 905.0 Modified/DOE RP5	<b>Count Time:</b> 60 min
<b>Prep Batch:</b> 1485858		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/19/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90		14.0	pCi/g	+/-0.808	2.63	0.320	1.00

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).

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

SDG Number: GEL374988  
 Lab Sample ID: 374988012  
  
 Client ID: B30RH0  
 Batch ID: 1485712  
 Run Date: 06/16/2015 09:04  
 Data File: G374988012.CNF;1  
 Prep Batch: 1485712  
 Prep Date: 06/15/2015 00:00

Client: CPRC001  
 Date Collected: 06/08/2015 10:14  
 Date Received: 06/12/2015 09:10  
  
 Method: GAMMA\_GS  
 Analyst: MXR1  
 Aliquot: 17.632 g  
 Prep Method: DOE HASL 300, 4.5.2.3/Ga-01

Project: CPRC0F15027  
 Matrix: SOIL  
 %Moisture: 3.9  
  
 Prep Basis: Dry Weight  
 SOP Ref: GL-RAD-A-013  
 Instrument: GAM13  
 Count Time: 240 min  
 Prep SOP Ref: GL-RAD-A-021

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	-0.00574	pCi/g	+/-0.112	0.113	0.200	0.100
10198-40-0	Cobalt-60	U	-0.0887	pCi/g	+/-0.122	0.129	0.205	0.050
14683-23-9	Europium-152	U	0.197	pCi/g	+/-0.391	0.401	0.494	0.100
15585-10-1	Europium-154	U	-0.0662	pCi/g	+/-0.337	0.338	0.598	0.100
14391-16-3	Europium-155	U	0.198	pCi/g	+/-0.233	0.250	0.374	0.100

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

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

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988012	<b>Date Collected:</b> 06/08/2015 10:14	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.9
<b>Client ID:</b> B30RH0		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485720	<b>Method:</b> I129LL_SEP_LEPS_GS	<b>SOP Ref:</b> GL-RAD-A-006
<b>Run Date:</b> 06/22/2015 08:46	<b>Analyst:</b> MJH1	<b>Instrument:</b> XRAY3
<b>Data File:</b> I374988012.CNF;1	<b>Aliquot:</b> 1.005 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485720	<b>Prep Method:</b> DOE EML HASL-300,I-01 M	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.113	pCi/g	+/-0.760	0.762	1.52	2.00

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

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

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988012	<b>Date Collected:</b> 06/08/2015 10:14	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.9
<b>Client ID:</b> B30RH0		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485659	<b>Method:</b> TC99_EIE_LSC	<b>SOP Ref:</b> GL-RAD-A-059
<b>Run Date:</b> 06/23/2015 18:55	<b>Analyst:</b> MYM1	<b>Instrument:</b> LSCBLUE
<b>Data File:</b> E1485659.xls	<b>Aliquot:</b> 2.21 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485659	<b>Prep Method:</b> DOE EML HASL-300, Tc-02-	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	0.101	pCi/g	+/-0.760	0.760	1.31	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	56300	58500	CPM	96.3	(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).

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988012	<b>Date Collected:</b> 06/08/2015 10:14	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.9
<b>Client ID:</b> B30RH0		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1486494	<b>Method:</b> C14_LSC	<b>SOP Ref:</b> GL-RAD-A-003
<b>Run Date:</b> 06/22/2015 14:16	<b>Analyst:</b> EXK2	<b>Instrument:</b> LSCTEAL
<b>Data File:</b> C1486494R.xls	<b>Aliquot:</b> 0.621 g	<b>Count Time:</b> 40 min
<b>Prep Batch:</b> 1486494	<b>Prep Method:</b> EPA EERF C-01 Modified	
<b>Prep Date:</b> 06/20/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	0.791	pCi/g	+/-1.59	1.59	2.70	5.00

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

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

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988012	<b>Date Collected:</b> 06/08/2015 10:14	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.9
<b>Client ID:</b> B30RH0		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1486509	<b>Method:</b> TRITIUM_DIST_LSC	<b>SOP Ref:</b> GL-RAD-A-002
<b>Run Date:</b> 06/22/2015 20:44	<b>Analyst:</b> GXR1	<b>Instrument:</b> LSCSILVER
<b>Data File:</b> T1486509.xls	<b>Aliquot:</b> 1.076 g	<b>Count Time:</b> 20 min
<b>Prep Batch:</b> 1486509	<b>Prep Method:</b> EPA 906.0 Modified	
<b>Prep Date:</b> 06/22/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		81.2	pCi/g	+/-19.1	26.5	24.9	30.0

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

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

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988012	<b>Date Collected:</b> 06/08/2015 10:14	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3.9
<b>Client ID:</b> B30RH0		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1485598	<b>Method:</b> ASTM D 2216 (Modified)	<b>SOP Ref:</b> GL-OA-E-020
<b>Run Date:</b> 06/12/2015 15:20	<b>Analyst:</b> CXC1	<b>Instrument:</b> BALHD2000D
<b>Data File:</b>		<b>Count Time:</b>
<b>Prep Batch:</b> 1485598		
<b>Prep Date:</b> 06/12/2015 15:20		

CAS No.	Parmname	Qual	Result	Units	MDC
	Moisture		3.92	percent +/-	

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

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

June 29, 2015

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**Certificate of Analysis**  
**Sample Summary**

SDG Number: GEL374988	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 374988013	Date Collected: 06/08/2015 10:37	Matrix: SOIL
	Date Received: 06/12/2015 09:10	%Moisture: 3
Client ID: B30RH2	Method: AMCMISO_EIE_PREC_AEA	Prep Basis: Dry Weight
Batch ID: 1485928	Analyst: MXS2	SOP Ref: GL-RAD-A-011
Run Date: 06/20/2015 16:19	Aliquot: 0.106 g	Instrument: 1251
Data File: S0374988013_AM.1A.gcnf	Prep Method: DOE EML HASL-300, Am-05	Count Time: 240 min
Prep Batch: 1485928		Prep SOP Ref: GL-RAD-A-021
Prep Date: 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.127	pCi/g	+/-0.358	0.358	0.382	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	11.1	20.2	pCi/g	55.2	(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).

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988013	<b>Date Collected:</b> 06/08/2015 10:37	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3
<b>Client ID:</b> B30RH2	<b>Method:</b> PUIISO_PLATE_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485930	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:17	<b>Aliquot:</b> 0.106 g	<b>Instrument:</b> 1212
<b>Data File:</b> S0374988013_PU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Pu-11-	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485930		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I3981-16-3	Plutonium-238	U	0.0853	pCi/g	+/-0.240	0.240	0.256	1.00
OER-100-70	Plutonium-239/240	U	0.0648	pCi/g	+/-0.243	0.244	0.409	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	15.1	18.6	pCi/g	81.2	(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).

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988013	<b>Date Collected:</b> 06/08/2015 10:37	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3
<b>Client ID:</b> B30RH2	<b>Method:</b> UIISO_IE_PRECIP_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485931	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:18	<b>Aliquot:</b> 0.106 g	<b>Instrument:</b> 1140
<b>Data File:</b> S0374988013_UU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, U-02-R	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485931		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 13968-55-3/139	Uranium-233/234	U	0.376	pCi/g	+/-0.394	0.399	0.491	1.00
15117-96-1/13982	Uranium-235/236	U	-0.0221	pCi/g	+/-0.191	0.191	0.442	1.00
7440-61-1	Uranium-238		0.543	pCi/g	+/-0.444	0.453	0.455	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	18.3	20.0	pCi/g	91.4	(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).

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988013	<b>Date Collected:</b> 06/08/2015 10:37	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3
<b>Client ID:</b> B30RH2	<b>Method:</b> SRISO_SEP_PRECIP_GPC	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485858	<b>Analyst:</b> KSD1	<b>SOP Ref:</b> GL-RAD-A-004
<b>Run Date:</b> 06/29/2015 07:00	<b>Aliquot:</b> 1.007 g	<b>Instrument:</b> PIC3D
<b>Data File:</b> S1485858r2.xls	<b>Prep Method:</b> EPA 905.0 Modified/DOE RP5	<b>Count Time:</b> 60 min
<b>Prep Batch:</b> 1485858		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/19/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90		5.89	pCi/g	+/-0.531	1.23	0.255	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	6.80	8.10	mg	84.0	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

SDG Number: GEL374988  
Lab Sample ID: 374988013  
  
Client ID: B30RH2  
Batch ID: 1485712  
Run Date: 06/17/2015 06:32  
Data File: G374988013.CNF;1  
Prep Batch: 1485712  
Prep Date: 06/15/2015 00:00

Client: CPRC001  
Date Collected: 06/08/2015 10:37  
Date Received: 06/12/2015 09:10  
  
Method: GAMMA\_GS  
Analyst: MXR1  
Aliquot: 19.05 g  
Prep Method: DOE HASL 300, 4.5.2.3/Ga-01

Project: CPRC0F15027  
Matrix: SOIL  
%Moisture: 3  
  
Prep Basis: Dry Weight  
SOP Ref: GL-RAD-A-013  
Instrument: GAM27  
Count Time: 240 min  
Prep SOP Ref: GL-RAD-A-021

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.0327	pCi/g	+/-0.0516	0.0538	0.0975	0.100
10198-40-0	Cobalt-60	U	-0.0134	pCi/g	+/-0.0701	0.0703	0.113	0.050
14683-23-9	Europium-152	U	0.146	pCi/g	+/-0.155	0.169	0.224	0.100
15585-10-1	Europium-154	U	0.133	pCi/g	+/-0.171	0.181	0.341	0.100
14391-16-3	Europium-155	U	0.136	pCi/g	+/-0.171	0.171	0.205	0.100

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

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

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988013	<b>Date Collected:</b> 06/08/2015 10:37	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3
<b>Client ID:</b> B30RH2		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485720	<b>Method:</b> I129LL_SEP_LEPS_GS	<b>SOP Ref:</b> GL-RAD-A-006
<b>Run Date:</b> 06/22/2015 08:57	<b>Analyst:</b> MJH1	<b>Instrument:</b> XRAY4
<b>Data File:</b> I374988013.CNF;1	<b>Aliquot:</b> 1.034 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485720	<b>Prep Method:</b> DOE EML HASL-300,I-01 M	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.165	pCi/g	+/-0.801	0.804	1.61	2.00

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

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

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988013	<b>Date Collected:</b> 06/08/2015 10:37	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3
<b>Client ID:</b> B30RH2		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485659	<b>Method:</b> TC99_EIE_LSC	<b>SOP Ref:</b> GL-RAD-A-059
<b>Run Date:</b> 06/23/2015 19:27	<b>Analyst:</b> MYM1	<b>Instrument:</b> LSCBLUE
<b>Data File:</b> E1485659.xls	<b>Aliquot:</b> 2.191 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485659	<b>Prep Method:</b> DOE EML HASL-300, Tc-02-	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	0.109	pCi/g	+/-0.760	0.760	1.31	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	56800	58500	CPM	97.0	(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).

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988013	<b>Date Collected:</b> 06/08/2015 10:37	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3
<b>Client ID:</b> B30RH2	<b>Method:</b> C14_LSC	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1486494	<b>Analyst:</b> EXK2	<b>SOP Ref:</b> GL-RAD-A-003
<b>Run Date:</b> 06/22/2015 14:57	<b>Aliquot:</b> 0.637 g	<b>Instrument:</b> LSCTEAL
<b>Data File:</b> C1486494R.xls	<b>Prep Method:</b> EPA EERF C-01 Modified	<b>Count Time:</b> 40 min
<b>Prep Batch:</b> 1486494		
<b>Prep Date:</b> 06/20/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-1.09	pCi/g	+/-1.51	1.51	2.67	5.00

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

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

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988013	<b>Date Collected:</b> 06/08/2015 10:37	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3
<b>Client ID:</b> B30RH2		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1486509	<b>Method:</b> TRITIUM_DIST_LSC	<b>SOP Ref:</b> GL-RAD-A-002
<b>Run Date:</b> 06/22/2015 21:06	<b>Analyst:</b> GXR1	<b>Instrument:</b> LSCSILVER
<b>Data File:</b> T1486509.xls	<b>Aliquot:</b> 1.035 g	<b>Count Time:</b> 20 min
<b>Prep Batch:</b> 1486509	<b>Prep Method:</b> EPA 906.0 Modified	
<b>Prep Date:</b> 06/22/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		103	pCi/g	+/-21.0	31.5	26.2	30.0

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

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

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988013	<b>Date Collected:</b> 06/08/2015 10:37	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 3
<b>Client ID:</b> B30RH2		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1485598	<b>Method:</b> ASTM D 2216 (Modified)	<b>SOP Ref:</b> GL-OA-E-020
<b>Run Date:</b> 06/12/2015 15:20	<b>Analyst:</b> CXC1	<b>Instrument:</b> BALHD2000D
<b>Data File:</b>		<b>Count Time:</b>
<b>Prep Batch:</b> 1485598		
<b>Prep Date:</b> 06/12/2015 15:20		

CAS No.	Parmname	Qual	Result	Units	MDC
	Moisture		2.96	percent +/-	

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988014	<b>Date Collected:</b> 05/19/2015 08:20	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.2
<b>Client ID:</b> B30RC7	<b>Method:</b> AMCMISO_EIE_PREC_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485928	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 16:19	<b>Aliquot:</b> 0.109 g	<b>Instrument:</b> 1253
<b>Data File:</b> S0374988014_AM.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Am-05	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485928		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	-0.0451	pCi/g	+/-0.200	0.200	0.521	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	14.5	19.6	pCi/g	73.7	(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).

June 29, 2015  
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Certificate of Analysis  
Sample Summary

SDG Number: GEL374988	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 374988014	Date Collected: 05/19/2015 08:20	Matrix: SOIL
	Date Received: 06/12/2015 09:10	%Moisture: 1.2
Client ID: B30RC7	Method: PUIISO_PLATE_AEA	Prep Basis: Dry Weight
Batch ID: 1485930	Analyst: MXS2	SOP Ref: GL-RAD-A-011
Run Date: 06/20/2015 11:17	Aliquot: 0.109 g	Instrument: 1215
Data File: S0374988014_PU.1A.gcnf	Prep Method: DOE EML HASL-300, Pu-11-	Count Time: 240 min
Prep Batch: 1485930		Prep SOP Ref: GL-RAD-A-021
Prep Date: 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I3981-16-3	Plutonium-238	U	-0.0773	pCi/g	+/-0.179	0.180	0.531	1.00
OER-100-70	Plutonium-239/240	U	-0.0934	pCi/g	+/-0.253	0.253	0.675	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	16.6	18.1	pCi/g	92.2	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988014	<b>Date Collected:</b> 05/19/2015 08:20	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.2
<b>Client ID:</b> B30RC7	<b>Method:</b> UIISO_IE_PRECIP_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485931	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:18	<b>Aliquot:</b> 0.109 g	<b>Instrument:</b> 1142
<b>Data File:</b> S0374988014_UU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, U-02-R	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485931		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 13968-55-3/139	Uranium-233/234		0.532	pCi/g	+/-0.457	0.466	0.452	1.00
15117-96-1/13982	Uranium-235/236	U	-0.0242	pCi/g	+/-0.209	0.209	0.484	1.00
7440-61-1	Uranium-238	U	0.206	pCi/g	+/-0.327	0.329	0.452	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	18.0	19.5	pCi/g	92.6	(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).

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988014	<b>Date Collected:</b> 05/19/2015 08:20	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.2
<b>Client ID:</b> B30RC7	<b>Method:</b> SRISO_SEP_PRECIP_GPC	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485858	<b>Analyst:</b> KSD1	<b>SOP Ref:</b> GL-RAD-A-004
<b>Run Date:</b> 06/29/2015 07:00	<b>Aliquot:</b> 1.005 g	<b>Instrument:</b> PIC3B
<b>Data File:</b> S1485858r2.xls	<b>Prep Method:</b> EPA 905.0 Modified/DOE RP5	<b>Count Time:</b> 60 min
<b>Prep Batch:</b> 1485858		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/19/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90		1.60	pCi/g	+/-0.364	0.467	0.435	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	6.40	8.10	mg	79.0	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

SDG Number: GEL374988  
Lab Sample ID: 374988014  
  
Client ID: B30RC7  
Batch ID: 1485712  
Run Date: 06/17/2015 06:47  
Data File: G374988014.CNF;1  
Prep Batch: 1485712  
Prep Date: 06/15/2015 00:00

Client: CPRC001  
Date Collected: 05/19/2015 08:20  
Date Received: 06/12/2015 09:10  
  
Method: GAMMA\_GS  
Analyst: MXR1  
Aliquot: 19.732 g  
Prep Method: DOE HASL 300, 4.5.2.3/Ga-01

Project: CPRC0F15027  
Matrix: SOIL  
%Moisture: 1.2  
  
Prep Basis: Dry Weight  
SOP Ref: GL-RAD-A-013  
Instrument: GAM12  
Count Time: 240 min  
Prep SOP Ref: GL-RAD-A-021

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	-0.0467	pCi/g	+/-0.059	0.0628	0.097	0.100
10198-40-0	Cobalt-60	U	-0.0324	pCi/g	+/-0.0651	0.0669	0.115	0.050
14683-23-9	Europium-152	U	0.0276	pCi/g	+/-0.203	0.204	0.275	0.100
15585-10-1	Europium-154	U	-0.00527	pCi/g	+/-0.194	0.194	0.360	0.100
14391-16-3	Europium-155	U	0.166	pCi/g	+/-0.179	0.195	0.294	0.100

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

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

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988014	<b>Date Collected:</b> 05/19/2015 08:20	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.2
<b>Client ID:</b> B30RC7		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485720	<b>Method:</b> I129LL_SEP_LEPS_GS	<b>SOP Ref:</b> GL-RAD-A-006
<b>Run Date:</b> 06/22/2015 09:05	<b>Analyst:</b> MJH1	<b>Instrument:</b> XRAY6
<b>Data File:</b> I374988014.CNF;1	<b>Aliquot:</b> 1.002 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485720	<b>Prep Method:</b> DOE EML HASL-300,I-01 M	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I5046-84-1	Iodine-129	U	-0.313	pCi/g	+/-0.613	0.630	0.763	2.00

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

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

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988014	<b>Date Collected:</b> 05/19/2015 08:20	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.2
<b>Client ID:</b> B30RC7		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485659	<b>Method:</b> TC99_EIE_LSC	<b>SOP Ref:</b> GL-RAD-A-059
<b>Run Date:</b> 06/23/2015 19:59	<b>Analyst:</b> MYM1	<b>Instrument:</b> LSCBLUE
<b>Data File:</b> E1485659.xls	<b>Aliquot:</b> 2.244 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485659	<b>Prep Method:</b> DOE EML HASL-300, Tc-02-	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-0.649	pCi/g	+/-0.706	0.706	1.25	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	57600	58500	CPM	98.5	(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).

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988014	<b>Date Collected:</b> 05/19/2015 08:20	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.2
<b>Client ID:</b> B30RC7		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1486494	<b>Method:</b> C14_LSC	<b>SOP Ref:</b> GL-RAD-A-003
<b>Run Date:</b> 06/22/2015 15:38	<b>Analyst:</b> EXK2	<b>Instrument:</b> LSCTEAL
<b>Data File:</b> C1486494R.xls	<b>Aliquot:</b> 0.551 g	<b>Count Time:</b> 40 min
<b>Prep Batch:</b> 1486494	<b>Prep Method:</b> EPA EERF C-01 Modified	
<b>Prep Date:</b> 06/20/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-0.244	pCi/g	+/-1.76	1.76	3.06	5.00

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988014	<b>Date Collected:</b> 05/19/2015 08:20	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 1.2
<b>Client ID:</b> B30RC7		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1486509	<b>Method:</b> TRITIUM_DIST_LSC	<b>SOP Ref:</b> GL-RAD-A-002
<b>Run Date:</b> 06/22/2015 21:27	<b>Analyst:</b> GXR1	<b>Instrument:</b> LSCSILVER
<b>Data File:</b> T1486509.xls	<b>Aliquot:</b> 1.099 g	<b>Count Time:</b> 20 min
<b>Prep Batch:</b> 1486509	<b>Prep Method:</b> EPA 906.0 Modified	
<b>Prep Date:</b> 06/22/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-1.61	pCi/g	+/-13.7	13.7	24.9	30.0

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

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

June 29, 2015

**Certificate of Analysis  
Sample Summary**

SDG Number: GEL374988  
Lab Sample ID: 374988014

Client: CPRC001  
Date Collected: 05/19/2015 08:20  
Date Received: 06/12/2015 09:10

Project: CPRC0F15027  
Matrix: SOIL  
%Moisture: 1.2

Client ID: B30RC7  
Batch ID: 1485598  
Run Date: 06/12/2015 15:20

Method: ASTM D 2216 (Modified)  
Analyst: CXC1

Prep Basis: As Received  
SOP Ref: GL-OA-E-020  
Instrument: BALHD2000D  
Count Time:

Data File:  
Prep Batch: 1485598  
Prep Date: 06/12/2015 15:20

CAS No.	Parmname	Qual	Result	Units	MDC
	Moisture		1.22	percent +/-	

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

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

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988015	<b>Date Collected:</b> 05/19/2015 08:53	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 5.7
<b>Client ID:</b> B30RD2	<b>Method:</b> AMCMISO_EIE_PREC_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485928	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 16:19	<b>Aliquot:</b> 0.109 g	<b>Instrument:</b> 1254
<b>Data File:</b> S0374988015_AM.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Am-05	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485928		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.179	pCi/g	+/-0.306	0.308	0.268	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	15.5	19.6	pCi/g	78.8	(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).

June 29, 2015  
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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988015	<b>Date Collected:</b> 05/19/2015 08:53	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 5.7
<b>Client ID:</b> B30RD2	<b>Method:</b> PUIISO_PLATE_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485930	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:17	<b>Aliquot:</b> 0.109 g	<b>Instrument:</b> 1216
<b>Data File:</b> S0374988015_PU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, Pu-11-	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485930		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I3981-16-3	Plutonium-238	U	-0.0404	pCi/g	+/-0.279	0.279	0.679	1.00
OER-100-70	Plutonium-239/240	U	0.304	pCi/g	+/-0.457	0.459	0.711	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	13.9	18.1	pCi/g	77.2	(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).

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988015	<b>Date Collected:</b> 05/19/2015 08:53	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 5.7
<b>Client ID:</b> B30RD2	<b>Method:</b> UIISO_IE_PRECIP_AEA	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485931	<b>Analyst:</b> MXS2	<b>SOP Ref:</b> GL-RAD-A-011
<b>Run Date:</b> 06/20/2015 11:18	<b>Aliquot:</b> 0.109 g	<b>Instrument:</b> 1143
<b>Data File:</b> S0374988015_UU.1A.gcnf	<b>Prep Method:</b> DOE EML HASL-300, U-02-R	<b>Count Time:</b> 240 min
<b>Prep Batch:</b> 1485931		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/17/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 13968-55-3/139	Uranium-233/234	U	0.333	pCi/g	+/-0.541	0.544	0.873	1.00
15117-96-1/13982	Uranium-235/236	U	0.203	pCi/g	+/-0.466	0.468	0.740	1.00
7440-61-1	Uranium-238		0.623	pCi/g	+/-0.565	0.577	0.518	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	13.6	19.5	pCi/g	69.9	(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).

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988015	<b>Date Collected:</b> 05/19/2015 08:53	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 5.7
<b>Client ID:</b> B30RD2	<b>Method:</b> SRISO_SEP_PRECIP_GPC	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485858	<b>Analyst:</b> KSD1	<b>SOP Ref:</b> GL-RAD-A-004
<b>Run Date:</b> 06/29/2015 07:08	<b>Aliquot:</b> 1.006 g	<b>Instrument:</b> PIC5A
<b>Data File:</b> S1485858r2.xls	<b>Prep Method:</b> EPA 905.0 Modified/DOE RP5	<b>Count Time:</b> 60 min
<b>Prep Batch:</b> 1485858		<b>Prep SOP Ref:</b> GL-RAD-A-021
<b>Prep Date:</b> 06/19/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90		1.34	pCi/g	+/-0.298	0.382	0.331	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	6.90	8.10	mg	85.2	(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).

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Certificate of Analysis  
Sample SummarySDG Number: GEL374988  
Lab Sample ID: 374988015Client: CPRC001  
Date Collected: 05/19/2015 08:53  
Date Received: 06/12/2015 09:10Project: CPRC0F15027  
Matrix: SOIL  
%Moisture: 5.7Client ID: B30RD2  
Batch ID: 1485712  
Run Date: 06/17/2015 06:48  
Data File: G374988015.CNF;1  
Prep Batch: 1485712  
Prep Date: 06/15/2015 00:00Method: GAMMA\_GS  
Analyst: MXR1  
Aliquot: 18.829 g  
Prep Method: DOE HASL 300, 4.5.2.3/Ga-01Prep Basis: Dry Weight  
SOP Ref: GL-RAD-A-013  
Instrument: GAM30  
Count Time: 240 min  
Prep SOP Ref: GL-RAD-A-021

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	-0.034	pCi/g	+/-0.0641	0.066	0.0956	0.100
10198-40-0	Cobalt-60	U	0.0414	pCi/g	+/-0.0628	0.0656	0.124	0.050
14683-23-9	Europium-152	U	0.0919	pCi/g	+/-0.132	0.139	0.210	0.100
15585-10-1	Europium-154	U	0.187	pCi/g	+/-0.166	0.187	0.345	0.100
14391-16-3	Europium-155	U	0.0803	pCi/g	+/-0.122	0.128	0.209	0.100

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

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

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988015	<b>Date Collected:</b> 05/19/2015 08:53	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 5.7
<b>Client ID:</b> B30RD2		<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485720	<b>Method:</b> I129LL_SEP_LEPS_GS	<b>SOP Ref:</b> GL-RAD-A-006
<b>Run Date:</b> 06/22/2015 09:33	<b>Analyst:</b> MJH1	<b>Instrument:</b> XRAY1
<b>Data File:</b> I374988015.CNF;1	<b>Aliquot:</b> 1.013 g	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485720	<b>Prep Method:</b> DOE EML HASL-300,I-01 M	
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I5046-84-1	Iodine-129	U	0.0535	pCi/g	+/-0.739	0.739	1.57	2.00

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

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

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988015	<b>Date Collected:</b> 05/19/2015 08:53	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 5.7
<b>Client ID:</b> B30RD2	<b>Method:</b> TC99_EIE_LSC	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1485659	<b>Analyst:</b> MYM1	<b>SOP Ref:</b> GL-RAD-A-059
<b>Run Date:</b> 06/23/2015 20:32	<b>Aliquot:</b> 2.4 g	<b>Instrument:</b> LSCBLUE
<b>Data File:</b> E1485659.xls	<b>Prep Method:</b> DOE EML HASL-300, Tc-02-	<b>Count Time:</b> 30 min
<b>Prep Batch:</b> 1485659		
<b>Prep Date:</b> 06/18/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	0.0376	pCi/g	+/-0.688	0.688	1.19	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	56800	58500	CPM	97.1	(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).

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988015	<b>Date Collected:</b> 05/19/2015 08:53	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 5.7
<b>Client ID:</b> B30RD2	<b>Method:</b> C14_LSC	<b>Prep Basis:</b> Dry Weight
<b>Batch ID:</b> 1486494	<b>Analyst:</b> EXK2	<b>SOP Ref:</b> GL-RAD-A-003
<b>Run Date:</b> 06/22/2015 16:19	<b>Aliquot:</b> 0.63 g	<b>Instrument:</b> LSCTEAL
<b>Data File:</b> C1486494R.xls	<b>Prep Method:</b> EPA EERF C-01 Modified	<b>Count Time:</b> 40 min
<b>Prep Batch:</b> 1486494		
<b>Prep Date:</b> 06/20/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	0.211	pCi/g	+/-1.55	1.55	2.67	5.00

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

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

June 29, 2015  
Rad

**Certificate of Analysis  
Sample Summary**

SDG Number: GEL374988  
Lab Sample ID: 374988015

Client: CPRC001  
Date Collected: 05/19/2015 08:53  
Date Received: 06/12/2015 09:10

Project: CPRC0F15027  
Matrix: SOIL  
%Moisture: 5.7

Client ID: B30RD2  
Batch ID: 1486509  
Run Date: 06/22/2015 21:49  
Data File: T1486509.xls  
Prep Batch: 1486509  
Prep Date: 06/22/2015 00:00

Method: TRITIUM\_DIST\_LSC  
Analyst: GXR1  
Aliquot: 1.018 g  
Prep Method: EPA 906.0 Modified

Prep Basis: As Received  
SOP Ref: GL-RAD-A-002  
Instrument: LSCSILVER  
Count Time: 20 min

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	4.85	pCi/g	+/-15.7	15.8	27.6	30.0

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

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

June 29, 2015

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL374988	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F15027
<b>Lab Sample ID:</b> 374988015	<b>Date Collected:</b> 05/19/2015 08:53	<b>Matrix:</b> SOIL
	<b>Date Received:</b> 06/12/2015 09:10	<b>%Moisture:</b> 5.7
<b>Client ID:</b> B30RD2		<b>Prep Basis:</b> As Received
<b>Batch ID:</b> 1485598	<b>Method:</b> ASTM D 2216 (Modified)	<b>SOP Ref:</b> GL-OA-E-020
<b>Run Date:</b> 06/12/2015 15:20	<b>Analyst:</b> CXC1	<b>Instrument:</b> BALHD2000D
<b>Data File:</b>		<b>Count Time:</b>
<b>Prep Batch:</b> 1485598		
<b>Prep Date:</b> 06/12/2015 15:20		

CAS No.	Parmname	Qual	Result	Units	MDC	
	Moisture		5.69	percent +/-		
<b>Surrogate/Tracer recovery</b>		<b>Result</b>	<b>Nominal</b>	<b>Units</b>	<b>Recovery%</b>	<b>Acceptable Limits</b>

**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

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## QC Summary

Report Date: June 29, 2015  
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**Client :** CH2MHill Plateau Remediation Company  
**MSIN R3-50 CHPRC**  
**PO Box 1600**  
**Richland, Washington 99352**  
**Contact: Mr. Scot Fitzgerald**  
**Workorder: 374988**

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
<b>Rad Alpha Spec</b>									
Batch	1485928								
QC1203337864	MB								
Americium-241			U	0.00	pCi/g			MXS2	06/21/1510:11
				Uncert: +/-0.072					
				TPU: +/-0.0721					
**Americium-243 Tracer	19.6			14.3	pCi/g	REC: 73	(15%-125%)		
				Uncert: +/-1.57					
				TPU: +/-2.49					
QC1203337865	374988001	DUP							
Americium-241		U	0.112	0.471	pCi/g				06/21/1510:11
				Uncert: +/-0.623		RPD: 87	(0% - 100%)		
				TPU: +/-0.624		RER: 1.02	(0-2)		
**Americium-243 Tracer	20.2		6.52	14.2	pCi/g	REC: 70	(15%-125%)		
				Uncert: +/-4.10					
				TPU: +/-5.92					
QC1203337866	LCS								
Americium-241				18.1	pCi/g	REC: 84	(80%-120%)		06/21/1510:11
				Uncert: +/-1.33					
				TPU: +/-1.97					
**Americium-243 Tracer	19.6			17.4	pCi/g	REC: 89	(15%-125%)		
				Uncert: +/-1.50					
				TPU: +/-2.40					
Batch	1485930								
QC1203337867	MB								
Plutonium-238			U	0.00362	pCi/g			MXS2	06/20/1511:17
				Uncert: +/-0.269					
				TPU: +/-0.269					
Plutonium-239/240			U	0.0254	pCi/g				
				Uncert: +/-0.265					
				TPU: +/-0.265					
**Plutonium-242 Tracer	18.1			13.0	pCi/g	REC: 72	(15%-125%)		
				Uncert: +/-2.52					
				TPU: +/-3.70					
QC1203337868	374988001	DUP							
Plutonium-238		U	-0.0389	U	0.305	pCi/g			06/23/1515:20
				Uncert: +/-0.229		RPD: 0	N/A		
				TPU: +/-0.229		RER: 1.32	(0-2)		
Plutonium-239/240			3.28	3.97	pCi/g				
				Uncert: +/-0.884		RPD: 19	(0% - 20%)		
				TPU: +/-0.976		RER: 0.785	(0-2)		
**Plutonium-242 Tracer	18.6		15.3	10.5	pCi/g	REC: 57	(15%-125%)		
				Uncert: +/-2.09					
				TPU: +/-3.14					
QC1203337869	LCS								
Plutonium-238			U	0.0909	pCi/g				06/20/1511:17
				Uncert: +/-0.256					

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## QC Summary

Workorder: 374988

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Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
<b>Rad Alpha Spec</b>									
Batch	1485930								
Plutonium-239/240	18.1	TPU:		+/-0.256					
		Uncert:		20.0	pCi/g	REC: 110	(80%-120%)		
		TPU:		+/-2.65					
		TPU:		+/-4.02					
**Plutonium-242 Tracer	18.1	TPU:		14.2	pCi/g	REC: 79	(15%-125%)		
		Uncert:		+/-2.53					
		TPU:		+/-3.72					
Batch	1485931								
QC1203337870	MB								
Uranium-233/234			U	0.0522	pCi/g			MXS2	06/20/1511:18
		Uncert:		+/-0.196					
		TPU:		+/-0.196					
Uranium-235/236			U	0.149	pCi/g				
		Uncert:		+/-0.294					
		TPU:		+/-0.295					
Uranium-238			U	-0.0165	pCi/g				
		Uncert:		+/-0.142					
		TPU:		+/-0.143					
**Uranium-232 Tracer	19.5			19.2	pCi/g	REC: 99	(15%-125%)		
		Uncert:		+/-2.28					
		TPU:		+/-3.89					
QC1203337871	374988001	DUP							
Uranium-233/234		U	0.257	U	0.225	pCi/g			06/20/1511:18
		Uncert:	+/-0.312		+/-0.707		RPD: 0	N/A	
		TPU:	+/-0.315		+/-0.708		RER: 0.0789	(0-2)	
Uranium-235/236		U	0.00	U	-0.152	pCi/g			
		Uncert:	+/-0.158		+/-0.459		RPD: 0	N/A	
		TPU:	+/-0.159		+/-0.461		RER: 0.611	(0-2)	
Uranium-238			0.477	U	0.259	pCi/g			
		Uncert:	+/-0.377		+/-0.596		RPD: 66	(0% - 100%)	
		TPU:	+/-0.384		+/-0.598		RER: 0.601	(0-2)	
**Uranium-232 Tracer	20.0		21.2		7.97	pCi/g	REC: 40	(15%-125%)	
		Uncert:	+/-2.22		+/-3.65				
		TPU:	+/-3.85		+/-5.63				
QC1203337872	LCS								
Uranium-233/234				25.2	pCi/g				06/20/1511:18
		Uncert:		+/-2.90					
		TPU:		+/-5.21					
Uranium-235/236				0.901	pCi/g				
		Uncert:		+/-0.661					
		TPU:		+/-0.679					
Uranium-238	24.9			26.5	pCi/g	REC: 106	(80%-120%)		
		Uncert:		+/-2.96					
		TPU:		+/-5.43					
**Uranium-232 Tracer	19.5			15.2	pCi/g	REC: 78	(15%-125%)		
		Uncert:		+/-2.55					
		TPU:		+/-4.20					
<b>Rad Gamma Spec</b>									
Batch	1485712								

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## QC Summary

Workorder: 374988

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Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
<b>Rad Gamma Spec</b>									
Batch	1485712								
QC1203337249	MB								
Cesium-137			U	-0.0277	pCi/g			MXR1	06/17/1506:55
				Uncert: +/-0.0825					
				TPU: +/-0.0835					
Cobalt-60			U	0.0311	pCi/g				
				Uncert: +/-0.100					
				TPU: +/-0.101					
Europium-152			U	0.077	pCi/g				
				Uncert: +/-0.198					
				TPU: +/-0.201					
Europium-154			U	-0.00497	pCi/g				
				Uncert: +/-0.249					
				TPU: +/-0.249					
Europium-155			U	-0.152	pCi/g				
				Uncert: +/-0.166					
				TPU: +/-0.180					
QC1203337250	374988001	DUP							
Cesium-137		0.184		0.162	pCi/g				06/17/1506:59
		Uncert: +/-0.118		+/-0.101		RPD: 13	(0% - 100%)		
		TPU: +/-0.120		+/-0.102		RER: 0.274	(0-2)		
Cobalt-60	U	0.0402	U	0.111	pCi/g				
		Uncert: +/-0.0639		+/-0.0477		RPD: 0	N/A		
		TPU: +/-0.0665		+/-0.0702		RER: 1.44	(0-2)		
Europium-152	U	0.0503	U	-0.0858	pCi/g				
		Uncert: +/-0.178		+/-0.144		RPD: 0	N/A		
		TPU: +/-0.179		+/-0.150		RER: 1.14	(0-2)		
Europium-154	U	0.129	U	0.067	pCi/g				
		Uncert: +/-0.211		+/-0.194		RPD: 0	N/A		
		TPU: +/-0.220		+/-0.196		RER: 0.413	(0-2)		
Europium-155	U	0.0598	U	-0.078	pCi/g				
		Uncert: +/-0.170		+/-0.147		RPD: 0	N/A		
		TPU: +/-0.172		+/-0.151		RER: 1.18	(0-2)		
QC1203337251	LCS								
Americium-241	1450			1630	pCi/g	REC: 113	(80%-120%)		06/17/1506:56
		Uncert: +/-22.7		+/-125					
Cesium-137	497			539	pCi/g	REC: 108	(80%-120%)		
		Uncert: +/-8.92		+/-58.4					
		TPU: +/-58.4		438					
Cobalt-60	421			438	pCi/g	REC: 104	(80%-120%)		
		Uncert: +/-10.4		+/-43.7					
		TPU: +/-43.7		1.62					
Europium-152			U	1.62	pCi/g				
		Uncert: +/-3.53		+/-3.60					
		TPU: +/-3.60		1.24					
Europium-154			U	1.24	pCi/g				
		Uncert: +/-3.16		+/-3.21					
		TPU: +/-3.21		1.96					
Europium-155			U	1.96	pCi/g				
		Uncert: +/-3.45							

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## QC Summary

Workorder: 374988

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Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
<b>Rad Gamma Spec</b>									
Batch	1485712								
		TPU:		+/-3.56					
Batch	1485720								
QC1203337266	MB								
Iodine-129			U	-0.029	pCi/g			MJH1	06/22/1509:33
		Uncert:		+/-0.416					
		TPU:		+/-0.417					
QC1203337267	374988001	DUP							
Iodine-129		U	0.0264	U	0.911	pCi/g			06/22/1509:34
		Uncert:	+/-0.641		+/-0.765	RPD:	0	N/A	
		TPU:	+/-0.641		+/-0.873	RER:	1.60	(0-2)	
QC1203337268	374988001	MS							
Iodine-129		41.5	U	0.0264	35.5	pCi/g	REC: 86	(75%-125%)	06/22/1509:44
		Uncert:	+/-0.641		+/-7.10				
		TPU:	+/-0.641		+/-7.94				
QC1203337269	LCS								
Iodine-129		38.9			36.5	pCi/g	REC: 94	(80%-120%)	06/22/1509:45
		Uncert:			+/-4.46				
		TPU:			+/-5.77				
<b>Rad Gas Flow</b>									
Batch	1485858								
QC1203337670	MB								
Strontium-90			U	0.197	pCi/g			KSD1	06/25/1509:13
		Uncert:		+/-0.236					
		TPU:		+/-0.238					
**Strontium Carrier		8.10			6.70	mg	REC: 83	(25%-125%)	
QC1203337671	374988005	DUP							
Strontium-90				1.64	2.26	pCi/g			06/29/1507:08
		Uncert:	+/-0.334		+/-0.348	RPD:	32*	(0% - 20%)	
		TPU:	+/-0.443		+/-0.530	RER:	1.75	(0-2)	
**Strontium Carrier		8.10		6.90	6.60	mg	REC: 82	(25%-125%)	
QC1203337672	LCS								
Strontium-90		21.5			21.4	pCi/g	REC: 99	(80%-120%)	06/25/1510:22
		Uncert:			+/-1.24				
		TPU:			+/-4.17				
**Strontium Carrier		8.10			6.70	mg	REC: 83	(25%-125%)	
<b>Rad Liquid Scintillation</b>									
Batch	1485659								
QC1203337093	MB								
Technetium-99			U	-0.359	pCi/g			MYM1	06/23/1521:05
		Uncert:		+/-0.671					
		TPU:		+/-0.671					
**Technetium-99m Tracer		58500			56500	CPM	REC: 97	(15%-125%)	
QC1203337094	374988001	DUP							
Technetium-99		U	0.0811	U	-0.161	pCi/g			06/23/1521:37
		Uncert:	+/-0.823		+/-0.749	RPD:	0	N/A	
		TPU:	+/-0.823		+/-0.749	RER:	0.427	(0-2)	
**Technetium-99m Tracer		58500		55700	56600	CPM	REC: 97	(15%-125%)	
QC1203337095	LCS								
Technetium-99		35.9			33.3	pCi/g	REC: 93	(80%-120%)	06/24/1507:26

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## QC Summary

Workorder: 374988

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Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
<b>Rad Liquid Scintillation</b>									
Batch	1485659								
				Uncert:					
				TPU:					
**Technetium-99m Tracer	58500			56700	CPM	REC: 97	(15%-125%)		
Batch	1486494								
QC1203338831	MB								
Carbon-14			U	-0.981	pCi/g			EXK2	06/21/1521:28
				Uncert:					
				TPU:					
QC1203338832	374988001	DUP							
Carbon-14		U	0.518	U	0.624				06/22/1517:00
				Uncert:					
				TPU:					
						RPD: 0	N/A		
						RER: 0.0904	(0-2)		
QC1203338833	374988001	MS							
Carbon-14		123	U	0.518	128	pCi/g	REC: 104	(75%-125%)	06/21/1522:50
				Uncert:					
				TPU:					
QC1203338834	LCS								
Carbon-14		109			113	pCi/g	REC: 104	(80%-120%)	06/21/1523:31
				Uncert:					
				TPU:					
Batch	1486509								
QC1203338894	MB								
Tritium			U	-3.8	pCi/g			GXR1	06/22/1522:10
				Uncert:					
				TPU:					
QC1203338895	374988001	DUP							
Tritium		60.5		78.7	pCi/g				06/22/1522:32
				Uncert:					
				TPU:					
						RPD: 26	(0% - 100%)		
						RER: 1.08	(0-2)		
QC1203338896	374988001	MS							
Tritium		89.0	60.5	156	pCi/g	REC: 107	(75%-125%)		06/22/1522:53
				Uncert:					
				TPU:					
QC1203338897	LCS								
Tritium		57.0		54.4	pCi/g	REC: 95	(80%-120%)		06/22/1523:15
				Uncert:					
				TPU:					

**Notes:**

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

The Qualifiers in this report are defined as follows:

- \* Duplicate analysis not within control limits
- + Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- B The associated QC sample blank has a result >= 2X the MDA and, after corrections, result is >= MDA for this sample
- C Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.
- D Results are reported from a diluted aliquot of sample.

## QC Summary

Workorder: 374988

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Parname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date	Time
E	Reported value is estimated due to interferences. See comment in narrative.									
M	Duplicate precision not met.									
N	Spike Sample recovery is outside control limits.									
S	Reported value determined by the Method of Standard Additions (MSA)									
U	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.									
UX	Gamma Spectroscopy--Uncertain identification									
W	Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.									
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier									
Y	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier									
Z	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier									

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

\*\* Indicates analyte is a surrogate compound.

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

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

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