



October 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: 382758
SDG: GEL382758

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on October 08, 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,

Sarah Edwards for
Heather Shaffer
Project Manager

Purchase Order: 303581 - 8H
Chain of Custody: F15-027-180, F15-027-198, F15-027-201, F15-027-204, F15-027-207, F15-027-210,
F15-027-213, F15-027-216, F15-027-219, F15-027-222, F15-027-237 and F15-027-249
Enclosures

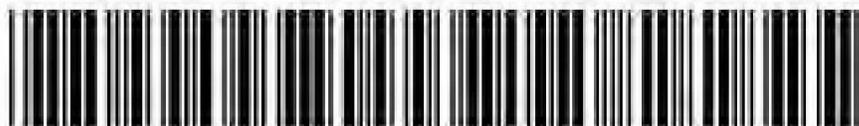


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Case Narrative

October 23, 2015

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF F15-027
SDG: GEL382758

October 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 October 08, 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:

Laboratory Identification	Sample Description
382758001	B31VL4
382758002	B31VN2
382758003	B31VN5
382758004	B31VN8
382758005	B31VP1
382758006	B31VP4
382758007	B31VR0
382758008	B31VP7
382758009	B31VR3
382758010	B31VR6
382758011	B31VV1
382758012	B31VW3

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.

October 23, 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.



Sarah Edwards for
Heather Shaffer
Project Manager

SAMPLE ISSUE RESOLUTION	SIR NUM	SIR16-020
	REV NUM	0
	DATE INITIATED	10/15/2015

SAMPLE EVENT INFORMATION

SAF NUM(S) F15-027
OPERABLE UNIT(S) 100-KR-2
PROJECT(S) 100-KE FSB
SAMPLE EVENT TITLE(S) Characterization Boreholes in UPR-100-K-1 and 1116-KE-3 Waste Sites
LABORATORY GEL Laboratories, LLC

SAMPLING INFORMATION

NUMBER OF SAMPLES 1
SAMPLE NUMBERS B31VR6
SAMPLE MATRIX SOIL
COLLECTION DATE 9/16/2015 - 9/16/2015
SDG NUM GEL382758

ISSUE BACKGROUND

CLASS Chain of Custody Issue (Field)
TYPE Other COC issue (Specify)
DESCRIPTION Upon chain of custody data entry for SDG GEL382758, COC #F15-027-222 (Sample #B31VR6), the "Collector" information is missing.

DISPOSITION

DESCRIPTION Document and Close
JUSTIFICATION Document and Close

SUBMITTED BY: Gayelyn Gibson DATE: 10/13/2015
 ACCEPTED BY: Scot Fitzgerald DATE: 10/15/2015

Chain of Custody and Supporting Documentation

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 382758			F15-027-180	PAGE 1 OF 1
COLLECTOR E.L. Kauer/CHPRC	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D		PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION C8797, Interval 14	PROJECT DESIGNATION 100-KE Characterization Boreholes - Soil		SAF NO. F15-027	AIR QUALITY <input type="checkbox"/>		
ICE CHEST NO. 6W05-467	FIELD LOGBOOK NO. HNF-N-645 3 - 17	ACTUAL SAMPLE DEPTH 51.2-52.7 FT	COA 303581	METHOD OF SHIPMENT FEDERAL EXPRESS ORIGINAL		
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6026	BILL OF LADING/AIR BILL NO. 7746 8382 3750				

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 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: B31VL3	PRESERVATION None	HOLDING TIME None
		TYPE OF CONTAINER P	NO. OF CONTAINER(S) 1
		VOLUME 125mL	SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS
		SAMPLE NO.	MATRIX*
B31VL4	SOIL	8-17-15	1153

October 23, 2015

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM E.L. Kauer/CHPRC	DATE/TIME AUG 17 2015 1330	RECEIVED BY/STORED IN SSU #2	DATE/TIME AUG 17 2015 1330	SPECIAL INSTRUCTIONS ** The GKI associated with this SAF shall be provided to 222-S laboratory prior to sample receipt. TRV;-15-113 (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 SSU #2	DATE/TIME 10/7/15 0850	RECEIVED BY/STORED IN L.D. WALL/CHPRC	DATE/TIME 10/7/15 0850		
RELINQUISHED BY/REMOVED FROM L.D. Wall	DATE/TIME OCT 07 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME		
RELINQUISHED BY/REMOVED FROM CHPRC	DATE/TIME	RECEIVED BY/STORED IN C. Seay/CHPRC	DATE/TIME 10/08/15 0850		
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	

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 382758			F15-027-198	PAGE 1 OF 1
COLLECTOR D.E. WIGHT/CHPRC	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days	
SAMPLING LOCATION C8797, Interval 20	PROJECT DESIGNATION 100-KE Characterization Boreholes - Soil	SAF NO. F15-027	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT FEDERAL EXPRESS ORIGINAL		
ICE CHEST NO. GWS-467	FIELD LOGBOOK NO. HNF-N-645 3 Pg 26	ACTUAL SAMPLE DEPTH 70.7-71.7 FT	COA 303581	BILL OF LADING/AIR BILL NO. 7746 8382 3750		
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6026					

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
		SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TIE TO: B31VN1	SAMPLE ANALYSIS
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B31VN2	SOIL	9-16-15	0845

October 23, 2015

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM D.E. WIGHT/CHPRC	DATE/TIME SEP 16 2015	RECEIVED BY/STORED IN SSU #2	DATE/TIME SEP 16 2015	** The GKI associated with this SAF shall be provided to 222-S laboratory prior to sample receipt. TRV;-15-113 (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 SSU #2	DATE/TIME 10/1/15 0800	RECEIVED BY/STORED IN L.D. WALL/CHPRC	DATE/TIME 10/1/15 0800		
RELINQUISHED BY/REMOVED FROM L.D. WALL/CHPRC	DATE/TIME OCT 07 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME		
RELINQUISHED BY/REMOVED FROM Fedex	DATE/TIME	RECEIVED BY/STORED IN C. Seagle/CHPRC	DATE/TIME 10/08/15 0850		
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	

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 382758			F15-027-201	PAGE 1 OF 1
COLLECTOR D.E. WIGHT/CHPRC		COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION C8797, Interval 21		PROJECT DESIGNATION 100-KE Characterization Boreholes - Soil		SAF NO. F15-027	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO. 6WS-467		FIELD LOGBOOK NO. HNF-N-645 3-26	ACTUAL SAMPLE DEPTH 71.6-72.5 FT	COA 303581	METHOD OF SHIPMENT FEDERAL EXPRESS ORIGINAL	
SHIPPED TO GEL Laboratories, LLC		OFFSITE PROPERTY NO. 6026		BILL OF LADING/AIR BILL NO. 7746 8382 3250		

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TIE TO: B31VN4	PRESERVATION	None	
		HOLDING TIME	None	
		TYPE OF CONTAINER	P	
		NO. OF CONTAINER(S)	1	
		VOLUME	125mL	
		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B31VN5	SOIL	9-16-15	0855	✓

October 23, 2015

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM D.E. WIGHT/CHPRC	RECEIVED BY/STORED IN SSU #2	** The GKI associated with this SAF shall be provided to 222-S laboratory prior to sample receipt. TRV;-15-113 (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 SSU #2	RECEIVED BY/STORED IN L.A. WALLACE/D.W. WALLACE (CHPRC)	
RELINQUISHED BY/REMOVED FROM L.D. WALLACE	RECEIVED BY/STORED IN FEDEX	
RELINQUISHED BY/REMOVED FROM CHPRC	RECEIVED BY/STORED IN C. Seaman/Cheryle Joye	
RELINQUISHED BY/REMOVED FROM Feelix	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	

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

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 382758			F15-027-204	PAGE 1 OF 1
COLLECTOR D.E. WIGHT/CHPRC		COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION C8797, Interval 21 DUPLICATE		PROJECT DESIGNATION 100-KE Characterization Boreholes - Soil		SAF NO. F15-027	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO. GWS-467		FIELD LOGBOOK NO. HNF-N-645 3 - 26	ACTUAL SAMPLE DEPTH 71.6-72.5 FT	COA 303581	METHOD OF SHIPMENT FEDERAL EXPRESS ORIGINAL	
SHIPPED TO GEL Laboratories, LLC		OFFSITE PROPERTY NO. 6026		BILL OF LADING/AIR BILL NO. 774683823750		
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 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			
		SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TIE TO: B31VN7	VOLUME	125mL		
		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS			
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B31VN8	SOIL	9-16-15	0855	✓		

October 23, 2015

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM D.E. WIGHT/CHPRC	DATE/TIME SEP 16 2015	RECEIVED BY/STORED IN SSU #2	DATE/TIME SEP 16 2015	** The GKI associated with this SAF shall be provided to 222-S laboratory prior to sample receipt. TRV;-15-113 (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; UIISO_IE_PRECIP_AEA: COMMON;	
RELINQUISHED BY/REMOVED FROM SSU #2	DATE/TIME 10/7/15 0850	RECEIVED BY/STORED IN L.D. WALL & D. WALL (CHPRC)	DATE/TIME 10/7/15 0850		
RELINQUISHED BY/REMOVED FROM L.D. WALL CHPRC	DATE/TIME OCT 07 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME		
RELINQUISHED BY/REMOVED FROM FedEx	DATE/TIME	RECEIVED BY/STORED IN C. Seagle (CHPRC)	DATE/TIME 10/08/15 0850		
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	

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CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 382758			F15-027-207	PAGE 1 OF 1
COLLECTOR D.E. WIGHT/CHPRC	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D		PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION C8797, Interval 22		PROJECT DESIGNATION 100-KE Characterization Boreholes - Soil		SAF NO. F15-027	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO. 6WS-467	FIELD LOGBOOK NO. HNF-N-645 3 Pg 26	ACTUAL SAMPLE DEPTH 73.4-75.1 FT	COA 303581	METHOD OF SHIPMENT FEDERAL EXPRESS		ORIGINAL
SHIPPED TO GEL Laboratories, LLC		OFFSITE PROPERTY NO. 6026	BILL OF LADING/AIR BILL NO. 77468382 3750			

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TIE TO: B31VP0	PRESERVATION	None	
		HOLDING TIME	None	
		TYPE OF CONTAINER	P	
		NO. OF CONTAINER(S)	1	
		VOLUME	125mL	
		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B31VP1	SOIL	9-16-15	0915	✓

October 23, 2015

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM D.E. WIGHT/CHPRC	DATE/TIME SEP 16 2015	** The GKI associated with this SAF shall be provided to 222-S laboratory prior to sample receipt. TRV;-15-113 (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 SSLI#2	DATE/TIME 10/7/15 0850	
RELINQUISHED BY/REMOVED FROM LD. WIGHT	DATE/TIME OCT 07 2015 1400	
RELINQUISHED BY/REMOVED FROM LD. WIGHT	DATE/TIME OCT 07 2015	
RELINQUISHED BY/REMOVED FROM LD. WIGHT	DATE/TIME OCT 07 2015	
RELINQUISHED BY/REMOVED FROM LD. WIGHT	DATE/TIME OCT 07 2015	
RELINQUISHED BY/REMOVED FROM LD. WIGHT	DATE/TIME OCT 07 2015	
RELINQUISHED BY/REMOVED FROM LD. WIGHT	DATE/TIME OCT 07 2015	
RELINQUISHED BY/REMOVED FROM LD. WIGHT	DATE/TIME OCT 07 2015	
RELINQUISHED BY/REMOVED FROM LD. WIGHT	DATE/TIME OCT 07 2015	
RELINQUISHED BY/REMOVED FROM LD. WIGHT	DATE/TIME OCT 07 2015	

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

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 382758			F15-027-249	PAGE 1 OF 1
COLLECTOR D.E. WIGHT/CHPRC		COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION C8797, Interval 36		PROJECT DESIGNATION 100-KE Characterization Boreholes - Soil		SAF NO. F15-027	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO. 605-467		FIELD LOGBOOK NO. HNF-N-645 3-26	ACTUAL SAMPLE DEPTH 101.4-103.3	COA 303581	METHOD OF SHIPMENT FEDERAL EXPRESS ORIGINAL	
SHIPPED TO GEL Laboratories, LLC		OFFSITE PROPERTY NO. 6026	BILL OF LADING/AIR BILL NO. 7746 8382 3750			
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 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			
	SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TIE TO: B31VW2	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS			
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B31VW3	SOIL	9-16-15	1258	✓		

October 23, 2015

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM D.E. WIGHT/CHPRC	DATE/TIME SEP 16 2015	RECEIVED BY/STORED IN 550 #2	DATE/TIME SEP 16 2015	** The GKI associated with this SAF shall be provided to 222-S laboratory prior to sample receipt. TRV;-15-113 (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 SSU #2	DATE/TIME OCT 07 2015 0850	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME OCT 07 2015 0850		
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME OCT 07 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME		
RELINQUISHED BY/REMOVED FROM FEDEX	DATE/TIME	RECEIVED BY/STORED IN C. Sample (Crayon) 10/08/15 0850	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	

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CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST <i>382758</i>			F15-027-237	PAGE 1 OF 1
COLLECTOR D.E. WIGHT/CHPRC		COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION C8797, Interval 32		PROJECT DESIGNATION 100-KE Characterization Boreholes - Soil		SAF NO. F15-027	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO. <i>GWS-467</i>		FIELD LOGBOOK NO. HNF-N-645 <i>3-26</i>	ACTUAL SAMPLE DEPTH <i>96.4 - 98.1</i>	COA 303581	METHOD OF SHIPMENT FEDERAL EXPRESS ORIGINAL	
SHIPPED TO GEL Laboratories, LLC		OFFSITE PROPERTY NO. <i>6026</i>		BILL OF LADING/AIR BILL NO. <i>7746 8382 3750</i>		
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		
SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TIE TO: B31VV0		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS		
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B31VV1	SOIL	9-16-15	1224	✓		

October 23, 2015

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM D.E. WIGHT/CHPRC	DATE/TIME SEP 16 2015	RECEIVED BY/STORED IN SSU #2	DATE/TIME SEP 16 2015	** The GKI associated with this SAF shall be provided to 222-S laboratory prior to sample receipt. TRV;-15-113 (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 SSU #2	DATE/TIME OCT 07 2015 0850	RECEIVED BY/STORED IN L.D. Wall	DATE/TIME OCT 07 2015 0850		
RELINQUISHED BY/REMOVED FROM L.D. Wall	DATE/TIME OCT 07 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME		
RELINQUISHED BY/REMOVED FROM Fedex	DATE/TIME	RECEIVED BY/STORED IN C. Seayle	DATE/TIME 10/8/15 0850		
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	

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CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 382758			F15-027-222	PAGE 1 OF 1
COLLECTOR		COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8C	DATA TURNAROUND
SAMPLING LOCATION C8797, Interval 27		PROJECT DESIGNATION 100-KE Characterization Boreholes - Soil		SAF NO. F15-027	AIR QUALITY <input type="checkbox"/>	15 Days / 15 Days
ICE CHEST NO. 6WS-467		FIELD LOGBOOK NO. HNF-N-645 3-26	ACTUAL SAMPLE DEPTH 86.0-89.3	COA 303581	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC		OFFSITE PROPERTY NO. 6026		BILL OF LADING/AIR BILL NO. 7746 8382 3750		
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 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
	SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TIE TO: B31VR5	SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS		
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B31VR6	SOIL	9-16-15	1145	✓		

October 23, 2015

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>D. Flood</i>	DATE/TIME 9-16-15	RECEIVED BY/STORED IN <i>SSV #2</i>	DATE/TIME 9-16-15	** The GKI associated with this SAF shall be provided to 222-S laboratory prior to sample receipt. TRV;-15-113 (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 <i>SSV #2</i>	DATE/TIME OCT 07 2015 0850	RECEIVED BY/STORED IN <i>L.D. Wall</i>	DATE/TIME OCT 07 2015 0850		
RELINQUISHED BY/REMOVED FROM <i>L.D. Wall</i>	DATE/TIME OCT 07 2015 1400	RECEIVED BY/STORED IN <i>FEDEX</i>	DATE/TIME		
RELINQUISHED BY/REMOVED FROM <i>FEDEX</i>	DATE/TIME	RECEIVED BY/STORED IN <i>C. Seagle</i>	DATE/TIME 10/08/15 0850		
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	

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CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 382758			F15-027-219	PAGE 1 OF 1
COLLECTOR D.E. WIGHT/CHPRC		COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION C8797, Interval 26		PROJECT DESIGNATION 100-KE Characterization Boreholes - Soil		SAF NO. F15-027	AIR QUALITY <input type="checkbox"/>	15 Days / 15 Days
ICE CHEST NO. GWS-467		FIELD LOGBOOK NO. HNF-N-645 <u>3 - Pg 19</u>	ACTUAL SAMPLE DEPTH 84.7-87.2	COA 303581	METHOD OF SHIPMENT FEDERAL EXPRESS ORIGINAL	
SHIPPED TO GEL Laboratories, LLC		OFFSITE PROPERTY NO. 6026	BILL OF LADING/AIR BILL NO. 7746 8382 3750			
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
SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TIE TO: B31VR2		SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS				
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B31VR3	SOIL	8-27-15	1217	J		

October 23, 2015

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM D.E. WIGHT/CHPRC	DATE/TIME AUG 27 2015 3:00	RECEIVED BY/STORED IN SSU #2	DATE/TIME AUG 27 2015 3:00	** The GKI associated with this SAF shall be provided to 222-S laboratory prior to sample receipt. TRV;-15-113 (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; PUIISO_IE_PRECIP_AEA: COMMON;	
RELINQUISHED BY/REMOVED FROM SSU #2	DATE/TIME OCT 07 2015 0850	RECEIVED BY/STORED IN L.D. Wall	DATE/TIME OCT 07 2015 0850		
RELINQUISHED BY/REMOVED FROM L.D. Wall	DATE/TIME OCT 07 2015 1400	RECEIVED BY/STORED IN CHPRC	DATE/TIME		
RELINQUISHED BY/REMOVED FROM CHPRC	DATE/TIME	RECEIVED BY/STORED IN FEDEX	DATE/TIME		
RELINQUISHED BY/REMOVED FROM FedEx	DATE/TIME	RECEIVED BY/STORED IN Creyasaga/Myjyou	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
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	

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 382758			F15-027-216	PAGE 1 OF 1
COLLECTOR D.E. WIGHT/CHPRC		COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION C8797, Interval 25		PROJECT DESIGNATION 100-KE Characterization Boreholes - Soil		SAF NO. F15-027	AIR QUALITY <input type="checkbox"/>	15 Days / 15 Days
ICE CHEST NO. GWS-467		FIELD LOGBOOK NO. HNF-N-645 <u>3</u> - <u>26</u>	ACTUAL SAMPLE DEPTH 81.5-83.7 FT	COA 303581	METHOD OF SHIPMENT FEDERAL EXPRESS ORIGINAL	
SHIPPED TO GEL Laboratories, LLC		OFFSITE PROPERTY NO. 6026		BILL OF LADING/AIR BILL NO. 7746 8382 3750		

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	
	SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TIE TO: B31VP9	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B31VR0	SOIL	9-16-15	10:14	✓

October 23, 2015

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM D.E. WIGHT/CHPRC	DATE/TIME SEP 16 2015	RECEIVED BY/STORED IN SSU #2	DATE/TIME SEP 16 2015	** The GKI associated with this SAF shall be provided to 222-S laboratory prior to sample receipt. TRV;-15-113 (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 SSU #2	DATE/TIME OCT 07 2015 0850	RECEIVED BY/STORED IN L.D. Wall	DATE/TIME OCT 07 2015 0850	
RELINQUISHED BY/REMOVED FROM L.D. Wall	DATE/TIME OCT 07 2015 1400	RECEIVED BY/STORED IN CHPRC	DATE/TIME	
RELINQUISHED BY/REMOVED FROM CHPRC	DATE/TIME	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM Fedex	DATE/TIME	RECEIVED BY/STORED IN C. Saagie / Chelaper / JPL (10/08/15) 0850	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
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

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CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 382758			F15-027-213	PAGE 1 OF 1
COLLECTOR D.E. WIGHT/CHPRC		COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION C8797, Interval 24		PROJECT DESIGNATION 100-KE Characterization Boreholes - Soil		SAF NO. F15-027	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO. 6W05-467		FIELD LOGBOOK NO. HNF-N-645 3 26	ACTUAL SAMPLE DEPTH 78.3-80.4 FT	COA 303581	METHOD OF SHIPMENT FEDERAL EXPRESS ORIGINAL	
SHIPPED TO GEL Laboratories, LLC		OFFSITE PROPERTY NO. 6026	BILL OF LADING/AIR BILL NO. 7746 8382 3750			
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			
SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TIE TO: B31VP6		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS			
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B31VP7	SOIL	9-16-15	0950	✓		

October 23, 2015

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM D.E. WIGHT/CHPRC	DATE/TIME SEP 16 2015	RECEIVED BY/STORED IN SSU #2	DATE/TIME SEP 16 2015	** The GKI associated with this SAF shall be provided to 222-S laboratory prior to sample receipt. TRV;-15-113 (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 SSU #2	DATE/TIME OCT 07 2015 0850	RECEIVED BY/STORED IN L.D. Wall	DATE/TIME OCT 07 2015 0850		
RELINQUISHED BY/REMOVED FROM L.D. Wall	DATE/TIME OCT 07 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME		
RELINQUISHED BY/REMOVED FROM FedEx	DATE/TIME	RECEIVED BY/STORED IN C. Seagle	DATE/TIME 10/08/15 0850		
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

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CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 382758		F15-027-210	PAGE 1 OF 1
COLLECTOR D.E. WIGHT/CHPRC	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION C8797, Interval 23	PROJECT DESIGNATION 100-KE Characterization Boreholes - Soil	SAF NO. F15-027	AIR QUALITY <input type="checkbox"/>		
ICE CHEST NO. 6WS-467	FIELD LOGBOOK NO. HNF-N-645 <u>3</u> ⁸³ <u>26</u>	ACTUAL SAMPLE DEPTH 74.3-76.0 FT	COA 303581	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6026	BILL OF LADING/AIR BILL NO. 7746 8382 3750			

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
		SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TIE TO: B31VP3	SAMPLE ANALYSIS
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B31VP4	SOIL	9-16-15	09:30

October 23, 2015

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM D.E. WIGHT/CHPRC	RECEIVED BY/STORED IN SSU # 2	** The GKI associated with this SAF shall be provided to 222-S laboratory prior to sample receipt. TRV;-15-113 (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;
DATE/TIME SEP 16 2015	DATE/TIME SEP 16 2015	
RELINQUISHED BY/REMOVED FROM SSU # 2	RECEIVED BY/STORED IN L.D. WIGHT/CHPRC	
DATE/TIME 10/7/15 0850	DATE/TIME 10/7/15 0850	
RELINQUISHED BY/REMOVED FROM L.D. WIGHT/CHPRC	RECEIVED BY/STORED IN FEDEX	
DATE/TIME OCT 07 2015 1400	DATE/TIME	
RELINQUISHED BY/REMOVED FROM FEDEX	RECEIVED BY/STORED IN C. Seeger/Chryseer	
DATE/TIME	DATE/TIME 10/08/15 0850	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	

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

October 23, 2015

SAMPLE RECEIPT & REVIEW FORM

Client: <u>CPRL</u>		SDG/AR/COC/Work Order:	
Received By: <u>cel</u>		Date Received: <u>10/08/15</u>	
Suspected Hazard Information	Yes <input type="checkbox"/>	No <input type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>2000 cpm</u>
Classified Radioactive II or III by RSO?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?	<input type="checkbox"/>	<input type="checkbox"/>	
Package, COC, and/or Samples marked as beryllium or asbestos containing?	<input type="checkbox"/>	<input type="checkbox"/>	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?	<input type="checkbox"/>	<input type="checkbox"/>	Hazard Class Shipped: UN#: <u>2910</u>
Samples identified as Foreign Soil?	<input type="checkbox"/>	<input type="checkbox"/>	

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: <u>Ice bags</u> Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius <u>2°C</u>
2a	Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>54092021002</u> Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	Do Low Level Perchlorate samples have headspace as required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
7	VOA vials contain acid preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(If unknown, select No)
8	VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
9	Are Encore containers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
10	Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
11	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
12	Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
13	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
14	Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16	Carrier and tracking number.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: <u>FedEx Air</u> FedEx Ground UPS Field Services Courier Other <u>746 8382 3750</u>

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 >= 2X the MDA and, after corrections, result is >= MDA for this sample	Y	Radiological		
Y	Manual	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			
+	Manual	Correlation coefficient for Method of Standard Additions (MSA) is < 0.995	Y	Inorganics		
B	Programmed	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	Y	General Chemistry		Replaces J Estimated Value
C	Programmed	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	Y	Inorganics	Metals	Replaces B Blank Detection
C	Programmed	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	Y	General Chemistry		Replaces B Blank Detection
<	Programmed	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide	Y	General Chemistry		for Reactive CN/S

October 23, 2015

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 October 2015

State	Certification
Alaska	UST-110
Arkansas	88-0651
CLIA	42D0904046
California	2940 Interim
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC000122013-10
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-12-00283, P330-12-00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC000122013-10
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA150001
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC000122013-10
Nebraska	NE-OS-26-13
Nevada	SC000122016-1
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	SC000122015-19
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Metals Analysis

Case Narrative

October 23, 2015

Metals

Technical Case Narrative

CH2M Hill Plateau Remediation Company (CPRC)

SDG #: GEL382758

Work Order #: 382758

Sample ID	Client ID
382758001	B31VL4
382758002	B31VN2
382758003	B31VN5
382758004	B31VN8
382758005	B31VP1
382758006	B31VP4
382758007	B31VR0
382758008	B31VP7
382758009	B31VR3
382758010	B31VR6
382758011	B31VV1
382758012	B31VW3
1203409561	Method Blank (MB)ICP
1203409562	Laboratory Control Sample (LCS)
1203409565	382758001(B31VL4L) Serial Dilution (SD)
1203409563	382758001(B31VL4D) Sample Duplicate (DUP)
1203409564	382758001(B31VL4S) Matrix Spike (MS)

Sample Analysis

Samples 382758 001, 002, 003, 004, 005, 006, 007, 008, 009, 010, 011 and 012 in this SDG were analyzed for metals on a "dry weight corrected" basis.

Method/Analysis Information

Analytical Batch:	1514126
Prep Batch :	1514125
Standard Operating Procedures:	GL-MA-E-013 REV# 24 and GL-MA-E-009 REV# 25
Analytical Method:	6010_METALS_ICP
Prep Method :	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: 382758001 (B31VL4).

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 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

October 23, 2015

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.

October 23, 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: GEL382758 GEL Work Order: 382758

The Qualifiers in this report are defined as follows:

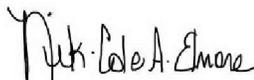
- * Duplicate analysis not within control limits
- D Results are reported from a diluted aliquot of sample.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

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: 22 OCT 2015

Title: Data Validator

Sample Data Summary

METALS
 -1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL382758

METHOD TYPE: SW846

SAMPLE ID: 382758001

CLIENT ID: B31VL4

CONTRACT: CPRC0F15027

MATRIX:SOIL

DATE RECEIVED 08-OCT-15

LEVEL: Low **%SOLIDS:** 97.2

<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	7310	ug/kg			P	154	1	OPTIMA3	101315-1

***Analytical Methods:**

P SW846 3050B/6010C

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL382758

METHOD TYPE: SW846

SAMPLE ID: 382758002

CLIENT ID: B31VN2

CONTRACT: CPRC0F15027

MATRIX:SOIL

DATE RECEIVED 08-OCT-15

LEVEL: Low %SOLIDS: 97.3

<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	15000	ug/kg			P	149	1	OPTIMA3	101315-1

*Analytical Methods:

P SW846 3050B/6010C

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL382758

METHOD TYPE: SW846

SAMPLE ID: 382758003

CLIENT ID: B31VN5

CONTRACT: CPRC0F15027

MATRIX:SOIL

DATE RECEIVED 08-OCT-15

LEVEL: Low %SOLIDS: 97.5

<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	12300	ug/kg			P	151	1	OPTIMA3	101315-1

*Analytical Methods:

P SW846 3050B/6010C

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL382758

METHOD TYPE: SW846

SAMPLE ID: 382758004

CLIENT ID: B31VN8

CONTRACT: CPRC0F15027

MATRIX:SOIL

DATE RECEIVED 08-OCT-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	15000	ug/kg			P	146	1	OPTIMA3	101315-1

*Analytical Methods:

P SW846 3050B/6010C

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL382758

METHOD TYPE: SW846

SAMPLE ID: 382758005

CLIENT ID: B31VP1

CONTRACT: CPRC0F15027

MATRIX:SOIL

DATE RECEIVED 08-OCT-15

LEVEL: Low %SOLIDS: 95.6

<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	11700	ug/kg			P	146	1	OPTIMA3	101315-1

*Analytical Methods:

P SW846 3050B/6010C

METALS
 -1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL382758

METHOD TYPE: SW846

SAMPLE ID: 382758006

CLIENT ID: B31VP4

CONTRACT: CPRC0F15027

MATRIX:SOIL

DATE RECEIVED 08-OCT-15

LEVEL: Low **%SOLIDS:** 94.6

<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	9950	ug/kg			P	153	1	OPTIMA3	101315-1

***Analytical Methods:**

P SW846 3050B/6010C

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL382758

METHOD TYPE: SW846

SAMPLE ID: 382758007

CLIENT ID: B31VR0

CONTRACT: CPRC0F15027

MATRIX:SOIL

DATE RECEIVED 08-OCT-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	9440	ug/kg			P	167	1	OPTIMA3	101315-1

*Analytical Methods:

P SW846 3050B/6010C

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL382758

METHOD TYPE: SW846

SAMPLE ID: 382758008

CLIENT ID: B31VP7

CONTRACT: CPRC0F15027

MATRIX:SOIL

DATE RECEIVED 08-OCT-15

LEVEL: Low %SOLIDS: 91.3

<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	10400	ug/kg			P	161	1	OPTIMA3	101315-1

*Analytical Methods:

P SW846 3050B/6010C

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL382758

METHOD TYPE: SW846

SAMPLE ID: 382758009

CLIENT ID: B31VR3

CONTRACT: CPRC0F15027

MATRIX:SOIL

DATE RECEIVED 08-OCT-15

LEVEL: Low %SOLIDS: 90.7

<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	16600	ug/kg			P	153	1	OPTIMA3	101315-1

*Analytical Methods:

P SW846 3050B/6010C

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL382758

METHOD TYPE: SW846

SAMPLE ID: 382758010

CLIENT ID: B31VR6

CONTRACT: CPRC0F15027

MATRIX:SOIL

DATE RECEIVED 08-OCT-15

LEVEL: Low %SOLIDS: 84

<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	9970	ug/kg			P	162	1	OPTIMA3	101315-1

*Analytical Methods:

P SW846 3050B/6010C

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL382758

METHOD TYPE: SW846

SAMPLE ID: 382758011

CLIENT ID: B31VV1

CONTRACT: CPRC0F15027

MATRIX:SOIL

DATE RECEIVED 08-OCT-15

LEVEL: Low %SOLIDS: 88

<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	13000	ug/kg			P	166	1	OPTIMA3	101315-1

*Analytical Methods:

P SW846 3050B/6010C

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL382758

METHOD TYPE: SW846

SAMPLE ID: 382758012

CLIENT ID: B31VW3

CONTRACT: CPRC0F15027

MATRIX:SOIL

DATE RECEIVED 08-OCT-15

LEVEL: Low %SOLIDS: 92.3

<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	3680	ug/kg			P	150	1	OPTIMA3	101315-1

*Analytical Methods:

P SW846 3050B/6010C

Quality Control Summary

October 23, 2015
GEL LABORATORIES LLC

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

QC Summary

Report Date: October 22, 2015

Page 1 of 2

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

Contact: Mr. Scot Fitzgerald

Workorder: 382758

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1514126										
QC1203409563	382758001	DUP									
Chromium		7310		6860	ug/kg	6.42		(0%-20%)	HSC	10/13/15	11:00
QC1203409562	LCS										
Chromium	49800			52000	ug/kg		104	(80%-120%)		10/13/15	10:54
QC1203409561	MB										
Chromium			U	ND	ug/kg					10/13/15	10:51
QC1203409564	382758001	MS									
Chromium	49800	7310		60300	ug/kg		106	(75%-125%)		10/13/15	11:04
QC1203409565	382758001	SDILT									
Chromium		71.1	D	14.8	ug/L	4.42		(0%-10%)		10/13/15	11:07

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

October 23, 2015

GEL LABORATORIES LLC

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

QC Summary

Workorder: 382758

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 #: GEL382758
Work Order #: 382758**

Method/Analysis Information

Product: Hexavalent Chromium
Analytical Batch: 1514532 **Method:** 7196_CR6: COMMON
Prep Batch : 1514530 **Method:** SW846 3060A

Sample Analysis

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

Sample ID	Client ID
382758001	B31VL4
382758002	B31VN2
382758003	B31VN5
382758004	B31VN8
382758005	B31VP1
382758006	B31VP4
382758007	B31VR0
382758008	B31VP7
382758009	B31VR3
382758010	B31VR6
382758011	B31VV1
382758012	B31VW3
1203410601	Method Blank (MB)
1203410602	Laboratory Control Sample (LCS)
1203410605	382758001(B31VL4) Sample Duplicate (DUP)
1203410608	382758001(B31VL4) Matrix Spike (MS)
1203410612	382758001(B31VL4) Matrix Spike Duplicate (MSD)
1203410603	Insoluble Lab Control Sample (ILCS)

Samples 382758 001, 002, 003, 004, 005, 006, 007, 008, 009, 010, 011 and 012 in this SDG were analyzed on a "dry weight corrected" 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 MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Sample 382758001 (B31VL4) was selected for QC analysis.

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

The MS/PS recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement

The RPD 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

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

Sample	Analyte	Value
1203410605 (B31VL4DUP)		Received 08-OCT-15, out of holding 16-SEP-15
1203410608 (B31VL4MS)		Received 08-OCT-15, out of holding 16-SEP-15
1203410612 (B31VL4MSD)		Received 08-OCT-15, out of holding 16-SEP-15
382758001 (B31VL4)		Received 08-OCT-15, out of holding 16-SEP-15
382758009 (B31VR3)		Received 08-OCT-15, out of holding 26-SEP-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) 1457525 was generated for samples 382758001 (B31VL4), 382758009 (B31VR3), 1203410605 (B31VL4DUP), 1203410608 (B31VL4MS) and 1203410612 (B31VL4MSD) 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

October 23, 2015

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.

October 23, 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: GEL382758 GEL Work Order: 382758

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).

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: 21 OCT 2015

Title: Data Validator

Sample Data Summary

~~October 23, 2015~~
GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: October 21, 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: B31VL4	Project: CPRC0F15027
Sample ID: 382758001	Client ID: CPRC001
Matrix: SOIL	
Collect Date: 17-AUG-15 11:53	
Receive Date: 08-OCT-15	
Collector: Client	
Moisture: 2.79%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium		803	123	410	ug/Kg	1	SXC5	10/15/15	1400	1514532	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	10/13/15	1507	1514530

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	7196_CR6	

Notes:

~~October 23, 2015~~
GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: October 21, 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:	B31VN2	Project:	CPRC0F15027
Sample ID:	382758002	Client ID:	CPRC001
Matrix:	SOIL		
Collect Date:	16-SEP-15 08:45		
Receive Date:	08-OCT-15		
Collector:	Client		
Moisture:	2.66%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium		543	122	408	ug/Kg	1	SXC5	10/15/15	1403	1514532	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	10/13/15	1507	1514530

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	7196_CR6	

Notes:

~~October 23, 2015~~
GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: October 21, 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:	B31VN5	Project:	CPRC0F15027
Sample ID:	382758003	Client ID:	CPRC001
Matrix:	SOIL		
Collect Date:	16-SEP-15 08:55		
Receive Date:	08-OCT-15		
Collector:	Client		
Moisture:	2.53%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium	B	337	117	390	ug/Kg	1	SXC5	10/15/15	1404	1514532	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	10/13/15	1507	1514530

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	7196_CR6	

Notes:

~~October 23, 2015~~
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Certificate of Analysis

Report Date: October 21, 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:	B31VN8	Project:	CPRC0F15027
Sample ID:	382758004	Client ID:	CPRC001
Matrix:	SOIL		
Collect Date:	16-SEP-15 08:55		
Receive Date:	08-OCT-15		
Collector:	Client		
Moisture:	2%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium		481	108	361	ug/Kg	1	SXC5	10/15/15	1408	1514532	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	10/13/15	1507	1514530

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	7196_CR6	

Notes:

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Certificate of Analysis

Report Date: October 21, 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:	B31VP1	Project:	CPRC0F15027
Sample ID:	382758005	Client ID:	CPRC001
Matrix:	SOIL		
Collect Date:	16-SEP-15 09:15		
Receive Date:	08-OCT-15		
Collector:	Client		
Moisture:	4.41%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium	B	206	112	375	ug/Kg	1	SXC5	10/15/15	1409	1514532	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	10/13/15	1507	1514530

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	7196_CR6	

Notes:

~~October 23, 2015~~
GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: October 21, 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:	B31VP4	Project:	CPRC0F15027
Sample ID:	382758006	Client ID:	CPRC001
Matrix:	SOIL		
Collect Date:	16-SEP-15 09:30		
Receive Date:	08-OCT-15		
Collector:	Client		
Moisture:	5.37%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium		610	123	410	ug/Kg	1	SXC5	10/15/15	1409	1514532	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	10/13/15	1507	1514530

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	7196_CR6	

Notes:

~~October 23, 2015~~
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2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 21, 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: B31VR0	Project: CPRC0F15027
Sample ID: 382758007	Client ID: CPRC001
Matrix: SOIL	
Collect Date: 16-SEP-15 10:14	
Receive Date: 08-OCT-15	
Collector: Client	
Moisture: 17.3%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium	U	138	138	460	ug/Kg	1	SXC5	10/15/15	1410	1514532	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	10/13/15	1507	1514530

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	7196_CR6	

Notes:

~~October 23, 2015~~
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Certificate of Analysis

Report Date: October 21, 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: B31VP7	Project: CPRC0F15027
Sample ID: 382758008	Client ID: CPRC001
Matrix: SOIL	
Collect Date: 16-SEP-15 09:50	
Receive Date: 08-OCT-15	
Collector: Client	
Moisture: 8.68%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium		1340	131	438	ug/Kg	1	SXC5	10/15/15	1410	1514532	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	10/13/15	1507	1514530

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	7196_CR6	

Notes:

~~October 23, 2015~~
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Certificate of Analysis

Report Date: October 21, 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:	B31VR3	Project:	CPRC0F15027
Sample ID:	382758009	Client ID:	CPRC001
Matrix:	SOIL		
Collect Date:	27-AUG-15 12:17		
Receive Date:	08-OCT-15		
Collector:	Client		
Moisture:	9.3%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium	U	129	129	430	ug/Kg	1	SXC5	10/15/15	1411	1514532	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	10/13/15	1507	1514530

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	7196_CR6	

Notes:

~~October 23, 2015~~
GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: October 21, 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:	B31VR6	Project:	CPRC0F15027
Sample ID:	382758010	Client ID:	CPRC001
Matrix:	SOIL		
Collect Date:	16-SEP-15 11:45		
Receive Date:	08-OCT-15		
Collector:	Client		
Moisture:	15.8%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium		548	140	466	ug/Kg	1	SXC5	10/15/15	1412	1514532	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	10/13/15	1507	1514530

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	7196_CR6	

Notes:

~~October 23, 2015~~
GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: October 21, 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:	B31VV1	Project:	CPRC0F15027
Sample ID:	382758011	Client ID:	CPRC001
Matrix:	SOIL		
Collect Date:	16-SEP-15 12:24		
Receive Date:	08-OCT-15		
Collector:	Client		
Moisture:	12.3%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium	B	248	135	452	ug/Kg	1	SXC5	10/15/15	1412	1514532	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	10/13/15	1507	1514530

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	7196_CR6	

Notes:

~~October 23, 2015~~
GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: October 21, 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:	B31VW3	Project:	CPRC0F15027
Sample ID:	382758012	Client ID:	CPRC001
Matrix:	SOIL		
Collect Date:	16-SEP-15 12:58		
Receive Date:	08-OCT-15		
Collector:	Client		
Moisture:	7.73%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis											
7196_CR6: COMMON "Dry Weight Corrected"											
Hexavalent Chromium	B	305	130	432	ug/Kg	1	SXC5	10/15/15	1415	1514532	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	SXC5	10/13/15	1507	1514530

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	7196_CR6	

Notes:

Quality Control Summary

October 23, 2015
GEL LABORATORIES LLC

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

QC Summary

Report Date: October 21, 2015

Page 1 of 1

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

Contact: Mr. Scot Fitzgerald

Workorder: 382758

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Spectrometric Analysis											
Batch	1514532										
QC1203410605	382758001	DUP									
Hexavalent Chromium		803		865	ug/Kg	7.42 ^		(+/-409)	SXC5	10/15/15	14:01
QC1203410603	ILCS										
Hexavalent Chromium	7930			8520	ug/Kg		107	(80%-120%)		10/15/15	13:57
QC1203410602	LCS										
Hexavalent Chromium	3970			4380	ug/Kg		110	(80%-120%)		10/15/15	13:57
QC1203410601	MB										
Hexavalent Chromium			U	119	ug/Kg					10/15/15	13:56
QC1203410608	382758001	MS									
Hexavalent Chromium	4090	803		4060	ug/Kg		79.7	(75%-125%)		10/15/15	14:01
QC1203410612	382758001	MSD									
Hexavalent Chromium	4080	803		3930	ug/Kg	3.36	76.5	(0%-30%)		10/15/15	14:02

Notes:

The Qualifiers in this report are defined as follows:

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

Mo.Day Yr. 15-OCT-15	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: VIS SPECTROMETER	Test / Method: SW846 7196A	Matrix Type: Solid	Client Code: CPRC, WSRB
Batch ID: 1514532	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 382758(GEL382758)			
Application Issues: Sample received out of holding			
Specification and Requirements Exception Description:		DER Disposition:	
<p>1. Sample received out of holding:</p> <p>382758 001,009</p> <p>QC 1203410605DUP,1203410608MS, 1203410612MSD</p>		<p>1. Samples (See Below) were received by the laboratory outside of the method specified holding time. The data is qualified.</p> <p>1203410605 (B31VL4DUP) [Received 08-OCT-15, out of holding 16-SEP-15].</p> <p>1203410608 (B31VL4MS) [Received 08-OCT-15, out of holding 16-SEP-15].</p> <p>1203410612 (B31VL4MSD) [Received 08-OCT-15, out of holding 16-SEP-15].</p> <p>382758001 (B31VL4) [Received 08-OCT-15, out of holding 16-SEP-15].</p> <p>382758009 (B31VR3) [Received 08-OCT-15, out of holding 26-SEP-15].</p>	

Originator's Name:

Sarah Hodgkiss 15-OCT-15

Data Validator/Group Leader:

Elzbieta Szulc 15-OCT-15

Radiological Analysis

October 23, 2015

Radiochemistry

Technical Case Narrative

CH2MHill Plateau Remediation Company (CPRC)

SDG #: GEL382758

Work Order #: 382758

Method/Analysis Information

Product: Alphaspec Pu, Solid
Analytical Method: PUIISO_PLATE_AEA
Prep Method: Dry Soil Prep
Analytical Batch Number: 1513929
Prep Batch Number: 1513741

Sample ID	Client ID
382758003	B31VN5
382758004	B31VN8
382758005	B31VP1
1203409064	Method Blank (MB)
1203409066	Laboratory Control Sample (LCS)
1203409065	382758003(B31VN5) Sample Duplicate (DUP)

Samples 382758 003, 004 and 005 in this SDG were analyzed on a "dry weight corrected" 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 volumes in this batch.

QC Information

All of the QC samples met the required acceptance limits.

Designated QC

The following sample was used for QC: 382758003 (B31VN5).

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 1203409066 (LCS) was recounted due to a detector error. The recount is reported. Samples 1203409064 (MB), 382758003 (B31VN5) and 382758005 (B31VP1) were recounted due to a detector error and then again due to high MDAs. The third counts are reported. Sample 382758004 (B31VN8) was recounted due to a detector error, then recounted due to a high MDA, and again to verify results. The fourth count is reported. Sample 1203409065 (B31VN5DUP) was recounted due to a detector error, then recounted due to a high MDA, and again due to a suspected false positive. The fourth count is reported.

Miscellaneous Information:

Data Exception (DER) Documentation

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

Manual Integration

No manual integrations were performed on data in this batch.

Sample-Specific MDA/MDC

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

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	Alphaspec U, Solid
Analytical Method:	UIISO_IE_PRECIP_AEA
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1513934
Prep Batch Number:	1513741

Sample ID	Client ID
382758003	B31VN5
382758004	B31VN8
382758005	B31VP1
1203409076	Method Blank (MB)
1203409078	Laboratory Control Sample (LCS)
1203409077	382758003(B31VN5) Sample Duplicate (DUP)

Samples 382758 003, 004 and 005 in this SDG were analyzed on a "dry weight corrected" 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 volumes in this batch.

QC Information

All of the QC samples met the required acceptance limits.

Designated QC

The following sample was used for QC: 382758003 (B31VN5).

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 1203409077 (B31VN5DUP), 382758003 (B31VN5), 382758004 (B31VN8) and 382758005 (B31VP1) were recounted due to high MDCs. The recounts are reported. Sample 1203409076 (MB) was recounted once due to a high MDC and a second time due to a suspected false positive. The second recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation

October 23, 2015

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

Manual Integration

No manual integrations were performed on data in this batch.

Sample-Specific MDA/MDC

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

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: Alphaspec Am241 Solid
Analytical Method: AMCMISO_EIE_PREC_AEA
Prep Method: Dry Soil Prep
Analytical Batch Number: 1513947
Prep Batch Number: 1513741

Sample ID	Client ID
382758003	B31VN5
382758004	B31VN8
382758005	B31VP1
1203409118	Method Blank (MB)
1203409120	Laboratory Control Sample (LCS)
1203409119	382758003(B31VN5) Sample Duplicate (DUP)

Samples 382758 003, 004 and 005 in this SDG were analyzed on a "dry weight corrected" 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.

QC Information

All of the QC samples met the required acceptance limits.

Designated QC

The following sample was used for QC: 382758003 (B31VN5).

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 1203409119 (B31VN5DUP) was recounted due to high MDC. The recount is reported. Sample 382758003 (B31VN5) was recounted first due to a peak shift and a second time due to a suspected false positive result. The second 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

Product: Alphaspec Am241 Solid

Analytical Method: AMCMISO_EIE_PREC_AEA
Prep Method: ASTM D 2216 (Modified)
Analytical Batch Number: 1514344
Prep Batch Number: 1513873

Sample ID	Client ID
382758001	B31VL4
382758002	B31VN2
382758006	B31VP4
382758007	B31VR0
382758008	B31VP7
382758009	B31VR3
382758010	B31VR6
382758011	B31VV1
382758012	B31VW3
1203410122	Method Blank (MB)
1203410124	Laboratory Control Sample (LCS)
1203410123	382758001(B31VL4) Sample Duplicate (DUP)

Samples 382758 001, 002, 006, 007, 008, 009, 010, 011 and 012 in this SDG were analyzed on a "dry weight corrected" 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.

QC Information

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

Designated QC

The following sample was used for QC: 382758001 (B31VL4).

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

A data exception report (DER) 1459280 was generated for sample 1203410124 (LCS) in this SDG/batch. DER 1459280 was generated due to Other. 1. The Am-243 tracer for the LCS 1203410124 does not meet the resolution requirements of having a full width half maximum of 100 keV or less. 1. The tracer peak is within the Am-241 ROI and the tracer yield and LCS spike recovery do meet the client acceptance criteria. Reporting results.

Manual Integration

No manual integrations were performed on data in this batch.

Sample-Specific MDA/MDC

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

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: Alphaspec Pu, Solid
Analytical Method: PUIISO_PLATE_AEA
Prep Method: ASTM D 2216 (Modified)
Analytical Batch Number: 1514345
Prep Batch Number: 1513873

Sample ID	Client ID
382758001	B31VL4
382758002	B31VN2
382758006	B31VP4
382758007	B31VR0
382758008	B31VP7

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382758009	B31VR3
382758010	B31VR6
382758011	B31VV1
382758012	B31VW3
1203410125	Method Blank (MB)
1203410127	Laboratory Control Sample (LCS)
1203410126	382758001(B31VL4) Sample Duplicate (DUP)

Samples 382758 001, 002, 006, 007, 008, 009, 010, 011 and 012 in this SDG were analyzed on a "dry weight corrected" 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.

QC Information

All of the QC samples met the required acceptance limits.

Designated QC

The following sample was used for QC: 382758001 (B31VL4).

Technical Information:

Holding Time

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

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Recounts

None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation

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

Manual Integration

No manual integrations were performed on data in this batch.

Sample-Specific MDA/MDC

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

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: Alphaspec U, Solid
Analytical Method: UIISO_IE_PRECIP_AEA
Prep Method: ASTM D 2216 (Modified)
Analytical Batch Number: 1514346
Prep Batch Number: 1513873

Sample ID	Client ID
382758001	B31VL4
382758002	B31VN2
382758006	B31VP4
382758007	B31VR0
382758008	B31VP7
382758009	B31VR3
382758010	B31VR6
382758011	B31VV1
382758012	B31VW3
1203410128	Method Blank (MB)
1203410130	Laboratory Control Sample (LCS)
1203410129	382758001(B31VL4) Sample Duplicate (DUP)

Samples 382758 001, 002, 006, 007, 008, 009, 010, 011 and 012 in this SDG were analyzed on a "dry weight corrected" 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

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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 volumes in this batch.

QC Information

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

Designated QC

The following sample was used for QC: 382758001 (B31VL4).

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 1203410128 (MB) was recounted due to a suspected blank false positive. The recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation

A data exception report (DER) 1459470 was generated for sample 1203410129 (B31VL4DUP) in this SDG/batch. DER 1459470 was generated due to Other. 1. The U-232 tracer for the Duplicate sample 1203410129 does not meet the resolution requirements of having a full width half maximum of 100 keV or less. 1. The tracer peak is within the U-232 ROI and the tracer yield recovery does meet the client acceptance criteria. Reporting results.

Manual Integration

No manual integrations were performed on data in this batch.

Sample-Specific MDA/MDC

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

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: Dry Weight-Percent Moisture
Analytical Method: ASTM D 2216 (Modified)
Analytical Batch Number: 1513742

Sample ID	Client ID
382758003	B31VN5
382758004	B31VN8
382758005	B31VP1
1203408668	382758003(B31VN5) Sample Duplicate (DUP)

Samples 382758 003, 004 and 005 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.

Calibration Information:

Quality Control (QC) Information:

Designated QC

The following sample was used for QC: 382758003 (B31VN5).

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

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Product: Dry Weight-Percent Moisture

Analytical Method: ASTM D 2216 (Modified)

Analytical Batch Number: 1513873

Sample ID	Client ID
382758001	B31VL4
382758002	B31VN2
382758006	B31VP4
382758007	B31VR0
382758008	B31VP7
382758009	B31VR3
382758010	B31VR6
382758011	B31VV1
382758012	B31VW3
1203408940	382758001(B31VL4) Sample Duplicate (DUP)

Samples 382758 001, 002, 006, 007, 008, 009, 010, 011 and 012 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: 382758001 (B31VL4).

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: Dry Soil Prep
Analytical Batch Number: 1513779
Prep Batch Number: 1513741

Sample ID	Client ID
382758003	B31VN5
382758004	B31VN8
382758005	B31VP1
1203408723	Method Blank (MB)
1203408725	Laboratory Control Sample (LCS)
1203408724	382758003(B31VN5) Sample Duplicate (DUP)

Samples 382758 003, 004 and 005 in this SDG were analyzed on a "dry weight corrected" 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.

QC Information

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

Designated QC

The following sample was used for QC: 382758003 (B31VN5).

Samples 382758 003, 004 and 005 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.

QC Information

All of the QC samples met the required acceptance limits.

Designated QC

The following sample was used for QC: 382758003 (B31VN5).

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: Gamma Cs137,Co60,Eu152,Eu154,E155
Analytical Method: GAMMA_GS
Prep Method: ASTM D 2216 (Modified)
Analytical Batch Number: 1513919
Prep Batch Number: 1513873

Sample ID	Client ID
382758001	B31VL4
382758002	B31VN2
382758006	B31VP4
382758007	B31VR0
382758008	B31VP7
382758009	B31VR3
382758010	B31VR6
382758011	B31VV1
382758012	B31VW3
1203409030	Method Blank (MB)
1203409032	Laboratory Control Sample (LCS)
1203409031	382758001(B31VL4) Sample Duplicate (DUP)

Samples 382758 001, 002, 006, 007, 008, 009, 010, 011 and 012 in this SDG were analyzed on a "dry weight corrected" 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.

QC Information

All of the QC samples met the required acceptance limits.

Designated QC

The following sample was used for QC: 382758001 (B31VL4).

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 1456942 was generated due to RDL less than MDA. 1. The Eu-155 required detection limit was not achieved in samples 382758 002,006 and 008. The Eu-152 required detection limit was not achieved in sample 382758006. 1. The samples counted for the maximum count time of one thousand minutes. 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

Qualifier	Reason	Analyte	Sample	Client Sample
X	Data rejected due to low abundance.	Europium-152	382758012	B31VW3

Method/Analysis Information

Product: Gamma I129, Solid
Analytical Method: DOE EML HASL-300,I-01 Modified

Analytical Batch Number: 1514310

Sample ID	Client ID
382758001	B31VL4
382758002	B31VN2
382758006	B31VP4
382758007	B31VR0
382758008	B31VP7
382758009	B31VR3
382758010	B31VR6
382758011	B31VV1
382758012	B31VW3
1203410039	Method Blank (MB)
1203410042	Laboratory Control Sample (LCS)
1203410040	382758001(B31VL4) Sample Duplicate (DUP)
1203410041	382758001(B31VL4) Matrix Spike (MS)

Samples 382758 001, 002, 006, 007, 008, 009, 010, 011 and 012 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.

QC Information

All of the QC samples met the required acceptance limits.

Designated QC

The following sample was used for QC: 382758001 (B31VL4).

Technical Information:

Holding Time

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

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Recounts

None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation

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

Sample-Specific MDA/MDC

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

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	SRTOT_SEP_PRECIP_GPC: COMMON
Analytical Method:	SRTOT_SEP_PRECIP_GPC
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1513937
Prep Batch Number:	1513741

Sample ID	Client ID
382758003	B31VN5
382758004	B31VN8
382758005	B31VP1
1203409082	Method Blank (MB)
1203409084	Laboratory Control Sample (LCS)
1203409083	382758003(B31VN5) Sample Duplicate (DUP)

Samples 382758 003, 004 and 005 in this SDG were analyzed on a "dry weight corrected" 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.

QC Information

All of the QC samples meet the required acceptance limits with the following exceptions: The blank, 1203409082 (MB), did not meet the detection limit due to keeping the blank volume consistent with the other sample aliquots. All other samples met the detection limits.

Designated QC

The following sample was used for QC: 382758003 (B31VN5).

Technical Information:

Holding Time

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

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries

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

Recounts

None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation

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

Manual Integration

No manual integrations were performed on data in this batch.

Sample-Specific MDA/MDC

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

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: SRTOT_SEP_PRECIP_GPC: COMMON
Analytical Method: SRTOT_SEP_PRECIP_GPC
Prep Method: ASTM D 2216 (Modified)
Analytical Batch Number: 1513949
Prep Batch Number: 1513873

Sample ID	Client ID
382758001	B31VL4
382758002	B31VN2
382758006	B31VP4
382758007	B31VR0
382758008	B31VP7
382758009	B31VR3
382758010	B31VR6
382758011	B31VV1
382758012	B31VW3
1203409121	Method Blank (MB)
1203409123	Laboratory Control Sample (LCS)
1203409122	382758001(B31VL4) Sample Duplicate (DUP)

Samples 382758 001, 002, 006, 007, 008, 009, 010, 011 and 012 in this SDG were analyzed on a "dry weight corrected" 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.

QC Information

All of the QC samples met the required acceptance limits.

Designated QC

The following sample was used for QC: 382758001 (B31VL4).

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 382758011 (B31VV1) was recounted due to results more negative than the three sigma TPU. The second count is reported. Sample 382758009 (B31VR3) was recounted due to a suspected false positive. The recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation

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

Sample-Specific MDA/MDC

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

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	Liquid Scint C14, Solid
Analytical Method:	C14_LSC
Analytical Batch Number:	1513926

Sample ID	Client ID
382758003	B31VN5
382758004	B31VN8
382758005	B31VP1
1203409060	Method Blank (MB)
1203409063	Laboratory Control Sample (LCS)
1203409061	382758003(B31VN5) Sample Duplicate (DUP)
1203409062	382758003(B31VN5) Matrix Spike (MS)

Samples 382758 003, 004 and 005 in this SDG were analyzed on an "as received" basis.

SOP Reference

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

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

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

Sample Geometry

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

Quality Control (QC) Information:

Blank Information

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

QC Information

All of the QC samples met the required acceptance limits.

Designated QC

The following sample was used for QC: 382758003 (B31VN5).

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: Liquid Scint Te99, Solid
Analytical Method: TC99_EIE_LSC
Analytical Batch Number: 1513944

Sample ID	Client ID
382758003	B31VN5
382758004	B31VN8
382758005	B31VP1
1203409107	Method Blank (MB)
1203409109	Laboratory Control Sample (LCS)
1203409108	382758003(B31VN5) Sample Duplicate (DUP)

Samples 382758 003, 004 and 005 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.

QC Information

All of the QC samples met the required acceptance limits.

Designated QC

The following sample was used for QC: 382758003 (B31VN5).

Technical Information:

Holding Time

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

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Recounts

Samples were recounted to verify sample results. 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: LSC, Tritium Dist, Solid
Analytical Method: TRITIUM_DIST_LSC
Analytical Batch Number: 1513946

Sample ID	Client ID
382758003	B31VN5
382758004	B31VN8
382758005	B31VP1

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1203409110	Method Blank (MB)
1203409113	Laboratory Control Sample (LCS)
1203409111	382758003(B31VN5) Sample Duplicate (DUP)
1203409112	382758003(B31VN5) Matrix Spike (MS)

Samples 382758 003, 004 and 005 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.

QC Information

All of the QC samples met the required acceptance limits.

Designated QC

The following sample was used for QC: 382758003 (B31VN5).

Technical Information:

Holding Time

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

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Recounts

Samples were recounted due to high relative percent difference/relative error ratio and due to low recovery. The recounts are reported.

Miscellaneous Information:

Data Exception (DER) Documentation

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

Sample-Specific MDA/MDC

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

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: Liquid Scint C14, Solid

Analytical Method: C14_LSC

Analytical Batch Number: 1513953

Sample ID	Client ID
382758001	B31VL4
382758002	B31VN2
382758006	B31VP4
382758007	B31VR0
382758008	B31VP7
382758009	B31VR3
382758010	B31VR6
382758011	B31VV1
382758012	B31VW3
1203409126	Method Blank (MB)
1203409129	Laboratory Control Sample (LCS)
1203409127	382758001(B31VL4) Sample Duplicate (DUP)
1203409128	382758001(B31VL4) Matrix Spike (MS)

Samples 382758 001, 002, 006, 007, 008, 009, 010, 011 and 012 in this SDG were analyzed on an "as received" basis.

SOP Reference

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

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

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

Sample Geometry

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

Quality Control (QC) Information:

Blank Information

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

QC Information

All of the QC samples met the required acceptance limits.

Designated QC

The following sample was used for QC: 382758001 (B31VL4).

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: LSC, Tritium Dist, Solid
Analytical Method: TRITIUM_DIST_LSC
Analytical Batch Number: 1513956

Sample ID	Client ID
382758001	B31VL4
382758002	B31VN2
382758006	B31VP4

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382758007	B31VR0
382758008	B31VP7
382758009	B31VR3
382758010	B31VR6
382758011	B31VV1
382758012	B31VW3
1203409134	Method Blank (MB)
1203409139	Laboratory Control Sample (LCS)
1203409135	382758001(B31VL4) Sample Duplicate (DUP)
1203409137	382758001(B31VL4) Matrix Spike (MS)

Samples 382758 001, 002, 006, 007, 008, 009, 010, 011 and 012 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.

QC Information

All of the QC samples met the required acceptance limits.

Designated QC

The following sample was used for QC: 382758001 (B31VL4).

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 1203409139 (LCS) was recounted due to low recovery. The recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation

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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: 1513958

Sample ID	Client ID
382758001	B31VL4
382758002	B31VN2
382758006	B31VP4
382758007	B31VR0
382758008	B31VP7
382758009	B31VR3
382758010	B31VR6
382758011	B31VV1
382758012	B31VW3
1203409140	Method Blank (MB)
1203409142	Laboratory Control Sample (LCS)
1203409141	382758001(B31VL4) Sample Duplicate (DUP)

Samples 382758 001, 002, 006, 007, 008, 009, 010, 011 and 012 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

October 23, 2015

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.

QC Information

All of the QC samples met the required acceptance limits.

Designated QC

The following sample was used for QC: 382758001 (B31VL4).

Technical Information:

Holding Time

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

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Recounts

Samples were recounted due to high MDCs. 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.

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.

October 23, 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: GEL382758 GEL Work Order: 382758

The Qualifiers in this report are defined as follows:

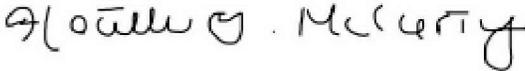
U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

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

Review/Validation

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

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

Signature: 

Name: Heather McCarty

Date: 22 OCT 2015

Title: Analyst II

DATA EXCEPTION REPORT

Mo.Day Yr. 14-OCT-15	Division: Radiochemistry	Quality Criteria: Specifications	Type: Process
Instrument Type: GAMMA SPECTROMETER	Test / Method: DOE HASL 300, 4.5.2.3/Ga-01-R	Matrix Type: Solid	Client Code: CPRC
Batch ID: 1513919	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 382758(GEL382758)			
Application Issues: RDL less than MDA			
Specification and Requirements Exception Description:		DER Disposition:	
1. The Eu-155 required detection limit was not achieved in samples 382758 002,006 and 008. The Eu-152 required detection limit was not achieved in sample 382758006.		1. The samples counted for the maximum count time of one thousand minutes. Reporting results.	

Originator's Name:
Shenise Gerideau 14-OCT-15

Data Validator/Group Leader:
Spencer Collins 14-OCT-15

DATA EXCEPTION REPORT

Mo.Day Yr. 14-OCT-15	Division: Radiochemistry	Quality Criteria: Specifications	Type: Process
Instrument Type: GAMMA SPECTROMETER	Test / Method: DOE HASL 300, 4.5.2.3/Ga-01-R	Matrix Type: Solid	Client Code: CPRC
Batch ID: 1513779	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 382758(GEL382758)			
Application Issues: RDL less than MDA			
Specification and Requirements Exception Description:		DER Disposition:	
<p>1. The following RDLs in sample 382758003 were not achieved: Co-60, Eu-152, Eu-154 and Eu-155. The following RDLs in sample 382758004 were not achieved: Eu-152, Eu-154 and Eu-155. The following RDLs in sample 382758005 were not achieved: Eu-152, Eu-154 and Eu-155. The following RDLs in MB 1203408723 were not achieved: Cs-137, Co-60, Eu-152, Eu-154 and Eu-155. The following RDLs in DUP 1203408724 were not achieved: Cs-137, Co-60, Eu-152, Eu-154 and Eu-155.</p>		<p>1. The detection limits were not achieved due to low sample mass. Reporting results.</p>	

Originator's Name:
Shenise Gerideau 14-OCT-15

Data Validator/Group Leader:
Spencer Collins 14-OCT-15

DATA EXCEPTION REPORT

Mo.Day Yr. 21-OCT-15	Division: Radiochemistry	Quality Criteria: Specifications	Type: Process
Instrument Type: ALPHA SPECTROMETER	Test / Method: DOE EML HASL-300, Am-05-RC Modified	Matrix Type: Solid	Client Code: CPRC
Batch ID: 1514344	Sample Numbers: see below		
Potentially affected work order(s)(SDG): 382758(GEL382758)			
Application Issues: Other			
Specification and Requirements Exception Description:		DER Disposition:	
1. The Am-243 tracer for the LCS 1203410124 does not meet the resolution requirements of having a full width half maximum of 100 keV or less.		1. The tracer peak is within the Am-241 ROI and the tracer yield and LCS spike recovery do meet the client acceptance criteria. Reporting results.	

Originator's Name:
Jessica Downey 21-OCT-15

Data Validator/Group Leader:
Scott Moreland 22-OCT-15

DATA EXCEPTION REPORT

Mo.Day Yr. 22-OCT-15	Division: Radiochemistry	Quality Criteria: Specifications	Type: Process
Instrument Type: ALPHA SPECTROMETER	Test / Method: DOE EML HASL-300, U-02-RC Modified	Matrix Type: Solid	Client Code: CPRC
Batch ID: 1514346	Sample Numbers: see below		
Potentially affected work order(s)(SDG): 382758(GEL382758)			
Application Issues: Other			
Specification and Requirements Exception Description:		DER Disposition:	
1. The U-232 tracer for the Duplicate sample 1203410129 does not meet the resolution requirements of having a full width half maximum of 100 keV or less.		1. The tracer peak is within the U-232 ROI and the tracer yield recovery does meet the client acceptance criteria. Reporting results.	

Originator's Name:
Jessica Downey 22-OCT-15

Data Validator/Group Leader:
Jessica Davis 22-OCT-15

Sample Data Summary

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758001	Date Collected: 08/17/2015 11:53	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.8
Client ID: B31VL4		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514344	Method: AMCMISO_EIE_PREC_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 21:37	Analyst: HAKB	Instrument: 1235
Data File: S0382758001_AM.1A.gcnf	Aliquot: 0.111 g	Count Time: 240 min
Prep Batch: 1514344	Prep Method: DOE EML HASL-300, Am-05	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.0529	pCi/g	+/-0.198	0.198	0.333	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	18.9	19.3	pCi/g	97.9	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758001	Date Collected: 08/17/2015 11:53	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.8
Client ID: B31VL4		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514345	Method: PUIISO_PLATE_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 21:35	Analyst: HAKB	Instrument: 1217
Data File: S0382758001_PU.1A.gcnf	Aliquot: 0.111 g	Count Time: 240 min
Prep Batch: 1514345	Prep Method: DOE EML HASL-300, Pu-11-	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	-0.0189	pCi/g	+/-0.163	0.163	0.378	1.00
OER-100-70	Plutonium-239/240	U	0.00629	pCi/g	+/-0.289	0.289	0.635	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	14.6	17.7	pCi/g	82.2	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758001	Date Collected: 08/17/2015 11:53	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.8
Client ID: B31VL4		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514346	Method: UIISO_IE_PRECIP_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 11:08	Analyst: HAKB	Instrument: 1139
Data File: S0382758001_UU.1A.gcnf	Aliquot: 0.111 g	Count Time: 240 min
Prep Batch: 1514346	Prep Method: DOE EML HASL-300, U-02-R	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 <small>13968-55-3/13966-29-5</small>	Uranium-233/234		0.606	pCi/g	+/-0.445	0.456	0.394	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.264	pCi/g	+/-0.347	0.350	0.264	1.00
7440-61-1	Uranium-238		0.552	pCi/g	+/-0.421	0.431	0.341	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	18.2	19.1	pCi/g	95.4	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758001	Date Collected: 08/17/2015 11:53	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.8
Client ID: B31VL4		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513949	Method: SRTOT_SEP_PRECIP_GPC	SOP Ref: GL-RAD-A-004
Run Date: 10/22/2015 12:08	Analyst: KSD1	Instrument: PIC5C
Data File: S1513949r1.xls	Aliquot: 0.331 g	Count Time: 60 min
Prep Batch: 1513949	Prep Method: EPA 905.0 Modified/DOE RP5	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/21/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	0.122	pCi/g	+/-0.750	0.751	1.41	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.30	8.10	mg	90.1	(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: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758001	Date Collected: 08/17/2015 11:53	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.8
Client ID: B31VL4		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513919	Method: GAMMA_GS	SOP Ref: GL-RAD-A-013
Run Date: 10/12/2015 11:25	Analyst: MXR1	Instrument: GAM12
Data File: G382758001.CNF;2	Aliquot: 43.116 g	Count Time: 1000 min
Prep Batch: 1513919	Prep Method: DOE HASL 300, 4.5.2.3/Ga-01	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/12/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.0059	pCi/g	+/-0.0168	0.017	0.029	0.100
10198-40-0	Cobalt-60	U	0.00682	pCi/g	+/-0.0185	0.0188	0.0332	0.050
14683-23-9	Europium-152	U	-0.0482	pCi/g	+/-0.0485	0.0533	0.0699	0.100
15585-10-1	Europium-154	U	-0.0202	pCi/g	+/-0.0576	0.0584	0.0993	0.100
14391-16-3	Europium-155	U	0.0127	pCi/g	+/-0.0477	0.0481	0.0777	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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758001	Date Collected: 08/17/2015 11:53	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.8
Client ID: B31VL4		Prep Basis: "As Received"
Batch ID: 1514310	Method: DOE EML HASL-300,I-01 Mo	SOP Ref: GL-RAD-A-006
Run Date: 10/19/2015 06:27	Analyst: MJH1	Instrument: XRAY1
Data File: I382758001.CNF;1	Aliquot: 1.017 g	Count Time: 30 min
Prep Batch: 1514310	Prep Method: DOE EML HASL-300,I-01 M	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	0.0174	pCi/g	+/-1.30	1.30	2.46	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).

October 23, 2015
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**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758001	Date Collected: 08/17/2015 11:53	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.8
Client ID: B31VL4		Prep Basis: "As Received"
Batch ID: 1513953	Method: C14_LSC	SOP Ref: GL-RAD-A-003
Run Date: 10/15/2015 18:12	Analyst: TXJ1	Instrument: LSCBLUE
Data File: C1513953.xls	Aliquot: 0.5 g	Count Time: 45 min
Prep Batch: 1513953	Prep Method: EPA EERF C-01 Modified	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-2.44	pCi/g	+/-2.11	2.11	3.75	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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758001	Date Collected: 08/17/2015 11:53	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.8
Client ID: B31VL4		Prep Basis: "As Received"
Batch ID: 1513956	Method: TRITIUM_DIST_LSC	SOP Ref: GL-RAD-A-002
Run Date: 10/15/2015 17:23	Analyst: GXR1	Instrument: LSCGOLD
Data File: T1513956.xls	Aliquot: 1.25 g	Count Time: 20 min
Prep Batch: 1513956	Prep Method: EPA 906.0 Modified	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	7.90	pCi/g	+/-13.0	13.1	22.4	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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758001	Date Collected: 08/17/2015 11:53	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.8
Client ID: B31VL4		Prep Basis: "As Received"
Batch ID: 1513958	Method: TC99_EIE_LSC	SOP Ref: GL-RAD-A-059
Run Date: 10/21/2015 08:34	Analyst: MYM1	Instrument: LSCGOLD
Data File: E1513958R.xls	Aliquot: 2.326 g	Count Time: 30 min
Prep Batch: 1513958	Prep Method: DOE EML HASL-300, Tc-02-	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-0.178	pCi/g	+/-0.709	0.709	1.24	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	36700	37700	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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758001	Date Collected: 08/17/2015 11:53	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.8
Client ID: B31VL4		Prep Basis: "As Received"
Batch ID: 1513873	Method: ASTM D 2216 (Modified)	SOP Ref: GL-OA-E-020
Run Date: 10/09/2015 11:23	Analyst: LYTI	Instrument: SP-39020004
Data File:		Count Time:
Prep Batch: 1513873		
Prep Date: 10/09/2015 11:23		

CAS No.	Parmname	Qual	Result	Units	MDC	
	Moisture		2.79	percent +/-		
Surrogate/Tracer recovery		Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758002	Date Collected: 09/16/2015 08:45	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.7
Client ID: B31VN2		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514344	Method: AMCMISO_EIE_PREC_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 21:37	Analyst: HAKB	Instrument: 1236
Data File: S0382758002_AM.1A.gcnf	Aliquot: 0.101 g	Count Time: 240 min
Prep Batch: 1514344	Prep Method: DOE EML HASL-300, Am-05	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	-0.0193	pCi/g	+/-0.167	0.167	0.386	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	19.1	21.2	pCi/g	90.4	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758002	Date Collected: 09/16/2015 08:45	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.7
Client ID: B31VN2		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514345	Method: PUIISO_PLATE_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 21:35	Analyst: HAKB	Instrument: 1218
Data File: S0382758002_PU.1A.gcnf	Aliquot: 0.101 g	Count Time: 240 min
Prep Batch: 1514345	Prep Method: DOE EML HASL-300, Pu-11-	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.0462	pCi/g	+/-0.256	0.257	0.492	1.00
OER-100-70	Plutonium-239/240	U	-0.461	pCi/g	+/-0.380	0.381	1.14	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	16.1	19.5	pCi/g	82.6	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758002	Date Collected: 09/16/2015 08:45	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.7
Client ID: B31VN2		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514346	Method: UIISO_IE_PRECIP_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 11:08	Analyst: HAKB	Instrument: 1140
Data File: S0382758002_UU.1A.gcnf	Aliquot: 0.101 g	Count Time: 240 min
Prep Batch: 1514346	Prep Method: DOE EML HASL-300, U-02-R	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 <small>13968-55-3/13966-29-5</small>	Uranium-233/234		0.775	pCi/g	+/-0.492	0.507	0.346	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.00	pCi/g	+/-0.180	0.180	0.267	1.00
7440-61-1	Uranium-238		0.937	pCi/g	+/-0.530	0.551	0.216	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	20.8	21.0	pCi/g	99.3	(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).

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**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758002	Date Collected: 09/16/2015 08:45	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.7
Client ID: B31VN2		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513949	Method: SRTOT_SEP_PRECIP_GPC	SOP Ref: GL-RAD-A-004
Run Date: 10/22/2015 12:09	Analyst: KSD1	Instrument: PIC8B
Data File: S1513949r1.xls	Aliquot: 0.358 g	Count Time: 60 min
Prep Batch: 1513949	Prep Method: EPA 905.0 Modified/DOE RP5	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/21/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium		1540	pCi/g	+/-18.0	399	0.983	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.80	8.10	mg	96.3	(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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Sample Summary

SDG Number: GEL382758
 Lab Sample ID: 382758002
 Client ID: B31VN2
 Batch ID: 1513919
 Run Date: 10/12/2015 11:25
 Data File: G382758002.CNF;2
 Prep Batch: 1513919
 Prep Date: 10/12/2015 00:00

Client: CPRC001
 Date Collected: 09/16/2015 08:45
 Date Received: 10/08/2015 08:50
 Method: GAMMA_GS
 Analyst: MXR1
 Aliquot: 39.777 g
 Prep Method: DOE HASL 300, 4.5.2.3/Ga-01

Project: CPRC0F15027
 Matrix: SOIL
 %Moisture: 2.7
 Prep Basis: "Dry Weight Corrected"
 SOP Ref: GL-RAD-A-013
 Instrument: GAM18
 Count Time: 1000 min
 Prep SOP Ref: GL-RAD-A-021

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137		0.230	pCi/g	+/-0.0357	0.0429	0.0365	0.100
10198-40-0	Cobalt-60	U	0.0115	pCi/g	+/-0.0225	0.0231	0.0332	0.050
14683-23-9	Europium-152	U	0.0462	pCi/g	+/-0.0821	0.0848	0.130	0.100
15585-10-1	Europium-154	U	0.0115	pCi/g	+/-0.0546	0.0548	0.0957	0.100
14391-16-3	Europium-155	U	-0.0355	pCi/g	+/-0.168	0.169	0.280	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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Sample Summary

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758002	Date Collected: 09/16/2015 08:45	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.7
Client ID: B31VN2		Prep Basis: "As Received"
Batch ID: 1514310	Method: DOE EML HASL-300,I-01 Mo	SOP Ref: GL-RAD-A-006
Run Date: 10/19/2015 06:43	Analyst: MJH1	Instrument: XRAY2
Data File: I382758002.CNF;2	Aliquot: 1.009 g	Count Time: 60 min
Prep Batch: 1514310	Prep Method: DOE EML HASL-300,I-01 M	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I5046-84-1	Iodine-129	U	0.825	pCi/g	+/-0.958	1.03	2.02	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758002	Date Collected: 09/16/2015 08:45	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.7
Client ID: B31VN2		Prep Basis: "As Received"
Batch ID: 1513953	Method: C14_LSC	SOP Ref: GL-RAD-A-003
Run Date: 10/15/2015 18:59	Analyst: TXJ1	Instrument: LSCBLUE
Data File: C1513953.xls	Aliquot: 0.5 g	Count Time: 45 min
Prep Batch: 1513953	Prep Method: EPA EERF C-01 Modified	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-1.12	pCi/g	+/-2.15	2.15	3.75	5.00
Surrogate/Tracer recovery		Result	Nominal	Units	Recovery%	Acceptable Limits		

Comments:

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

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Rad

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758002	Date Collected: 09/16/2015 08:45	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.7
Client ID: B31VN2		Prep Basis: "As Received"
Batch ID: 1513956	Method: TRITIUM_DIST_LSC	SOP Ref: GL-RAD-A-002
Run Date: 10/15/2015 17:45	Analyst: GXR1	Instrument: LSCGOLD
Data File: T1513956.xls	Aliquot: 1.25 g	Count Time: 20 min
Prep Batch: 1513956	Prep Method: EPA 906.0 Modified	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	1.56	pCi/g	+/-12.3	12.4	22.1	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).

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Sample Summary

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758002	Date Collected: 09/16/2015 08:45	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.7
Client ID: B31VN2		Prep Basis: "As Received"
Batch ID: 1513958	Method: TC99_EIE_LSC	SOP Ref: GL-RAD-A-059
Run Date: 10/21/2015 09:06	Analyst: MYM1	Instrument: LSCGOLD
Data File: E1513958R.xls	Aliquot: 2.048 g	Count Time: 30 min
Prep Batch: 1513958	Prep Method: DOE EML HASL-300, Tc-02-	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		2.77	pCi/g	+/-0.909	0.963	1.43	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	36900	37700	CPM	97.8	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758002	Date Collected: 09/16/2015 08:45	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.7
Client ID: B31VN2		Prep Basis: "As Received"
Batch ID: 1513873	Method: ASTM D 2216 (Modified)	SOP Ref: GL-OA-E-020
Run Date: 10/09/2015 11:23	Analyst: LYTI	Instrument: SP-39020004
Data File:		Count Time:
Prep Batch: 1513873		
Prep Date: 10/09/2015 11:23		

CAS No.	Parmname	Qual	Result	Units	MDC	
	Moisture		2.66	percent +/-		
Surrogate/Tracer recovery		Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758003	Date Collected: 09/16/2015 08:55	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.5
Client ID: B31VN5		Prep Basis: "As Received"
Batch ID: 1513742	Method: ASTM D 2216 (Modified)	SOP Ref: GL-OA-E-020
Run Date: 10/09/2015 10:58	Analyst: BSW1	Instrument: R2-39039003
Data File:		Count Time:
Prep Batch: 1513742		
Prep Date: 10/09/2015 10:58		

CAS No.	Parmname	Qual	Result	Units	MDC	
	Moisture		2.53	percent +/-		
Surrogate/Tracer recovery		Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758003	Date Collected: 09/16/2015 08:55	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.5
Client ID: B31VN5		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513779	Method: GAMMA_GS	SOP Ref: GL-RAD-A-013
Run Date: 10/12/2015 14:26	Analyst: BSW1	Instrument: WELL
Data File: G382758003.CNF;1	Aliquot: 16.439 g	Count Time: 240 min
Prep Batch: 1513779	Prep Method: DOE HASL 300, 4.5.2.3/Ga-01	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/09/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137		2.96	pCi/g	+/-2.28	2.29	1.88	0.100
10198-40-0	Cobalt-60	U	-0.663	pCi/g	+/-1.57	1.60	2.59	0.050
14683-23-9	Europium-152	U	3.14	pCi/g	+/-3.42	3.71	6.15	0.100
15585-10-1	Europium-154	U	-0.675	pCi/g	+/-2.54	2.55	4.59	0.100
14391-16-3	Europium-155	U	2.57	pCi/g	+/-5.84	5.96	9.91	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

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758003	Date Collected: 09/16/2015 08:55	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.5
Client ID: B31VN5		Prep Basis: "As Received"
Batch ID: 1513926	Method: C14_LSC	SOP Ref: GL-RAD-A-003
Run Date: 10/14/2015 17:07	Analyst: JXC5	Instrument: LSCGREEN
Data File: C1513926.xls	Aliquot: 0.7274 g	Count Time: 45 min
Prep Batch: 1513926	Prep Method: EPA EERF C-01 Modified	
Prep Date: 10/14/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-0.626	pCi/g	+/-1.67	1.67	2.89	5.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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Rad

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758003	Date Collected: 09/16/2015 08:55	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.5
Client ID: B31VN5		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513929	Method: PUIISO_PLATE_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/19/2015 15:03	Analyst: JXC5	Instrument: 1240
Data File: S0382758003_PU.2B.gcnf	Aliquot: 0.02335 g	Count Time: 1000 min
Prep Batch: 1513929	Prep Method: DOE EML HASL-300, Pu-11-	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/13/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	-0.0899	pCi/g	+/-0.466	0.466	0.994	1.00
OER-100-70	Plutonium-239/240	U	0.180	pCi/g	+/-0.431	0.432	0.688	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	71.5	84.8	pCi/g	84.4	(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**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758003	Date Collected: 09/16/2015 08:55	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.5
Client ID: B31VN5		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513934	Method: UIISO_IE_PRECIP_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/21/2015 11:13	Analyst: JXC5	Instrument: 1008
Data File: S0382758003_UU.2A.gcnf	Aliquot: 0.02335 g	Count Time: 999.9998 min
Prep Batch: 1513934	Prep Method: DOE EML HASL-300, U-02-R	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/13/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 <small>13968-55-3/13966-29-5</small>	Uranium-233/234		1.55	pCi/g	+/-0.799	0.821	0.987	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.478	pCi/g	+/-0.541	0.544	0.763	1.00
7440-61-1	Uranium-238		1.74	pCi/g	+/-0.726	0.756	0.618	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	85.0	92.8	pCi/g	91.6	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758003	Date Collected: 09/16/2015 08:55	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.5
Client ID: B31VN5		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513937	Method: SRTOT_SEP_PRECIP_GPC	SOP Ref: GL-RAD-A-004
Run Date: 10/13/2015 12:39	Analyst: JXC5	Instrument: LB4100H1
Data File: S1513937.xls	Aliquot: 0.11677 g	Count Time: 60 min
Prep Batch: 1513937	Prep Method: EPA 905.0 Modified/DOE RP5	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/13/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium		4820	pCi/g	+/-53.6	1250	4.45	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.70	8.10	mg	95.1	(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: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758003	Date Collected: 09/16/2015 08:55	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.5
Client ID: B31VN5		Prep Basis: "As Received"
Batch ID: 1513940	Method: DOE EML HASL-300,I-01 Mo	SOP Ref: GL-RAD-A-006
Run Date: 10/13/2015 11:29	Analyst: BSW1	Instrument: XRAY1
Data File: I382758003.CNF;1	Aliquot: 1.3844 g	Count Time: 120 min
Prep Batch: 1513940	Prep Method: DOE EML HASL-300,I-01 M	
Prep Date: 10/13/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I5046-84-1	Iodine-129	U	-0.009	pCi/g	+/-0.427	0.427	0.758	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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758003	Date Collected: 09/16/2015 08:55	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.5
Client ID: B31VN5		Prep Basis: "As Received"
Batch ID: 1513944	Method: TC99_EIE_LSC	SOP Ref: GL-RAD-A-059
Run Date: 10/20/2015 06:09	Analyst: JXC5	Instrument: LSCGREEN
Data File: E1513944R.xls	Aliquot: 2.7284 g	Count Time: 90 min
Prep Batch: 1513944	Prep Method: DOE EML HASL-300, Tc-02-	
Prep Date: 10/13/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		1.21	pCi/g	+/-0.576	0.592	0.943	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	3.69E+05	5.23E+05	CPM	70.6	(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

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758003	Date Collected: 09/16/2015 08:55	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.5
Client ID: B31VN5	Method: TRITIUM_DIST_LSC	Prep Basis: "As Received"
Batch ID: 1513946	Analyst: BSW1	SOP Ref: GL-RAD-A-002
Run Date: 10/14/2015 09:07	Aliquot: 0.4474 g	Instrument: LSCORANGE
Data File: T1513946R2.xls	Prep Method: EPA 906.0 Modified	Count Time: 35.02967 min
Prep Batch: 1513946		
Prep Date: 10/13/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	1.49	pCi/g	+/-11.5	11.5	20.9	30.0
Surrogate/Tracer recovery		Result	Nominal	Units	Recovery%	Acceptable Limits		

Comments:

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

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758003	Date Collected: 09/16/2015 08:55	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2.5
Client ID: B31VN5		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513947	Method: AMCMISO_EIE_PREC_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/19/2015 15:03	Analyst: BSW1	Instrument: 1244
Data File: S0382758003_AM.2B.genf	Aliquot: 0.02335 g	Count Time: 720 min
Prep Batch: 1513947	Prep Method: DOE EML HASL-300, Am-05	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/13/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.179	pCi/g	+/-0.530	0.530	0.938	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	90.0	91.6	pCi/g	98.3	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758004	Date Collected: 09/16/2015 08:55	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2
Client ID: B31VN8		Prep Basis: "As Received"
Batch ID: 1513742	Method: ASTM D 2216 (Modified)	SOP Ref: GL-OA-E-020
Run Date: 10/09/2015 10:58	Analyst: BSW1	Instrument: R2-39039003
Data File:		Count Time:
Prep Batch: 1513742		
Prep Date: 10/09/2015 10:58		

CAS No.	Parmname	Qual	Result	Units	MDC	
	Moisture		2.00	percent +/-		
Surrogate/Tracer recovery		Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number: GEL382758
 Lab Sample ID: 382758004
 Client ID: B31VN8
 Batch ID: 1513779
 Run Date: 10/13/2015 10:17
 Data File: G382758004.CNF;1
 Prep Batch: 1513779
 Prep Date: 10/09/2015 00:00

Client: CPRC001
 Date Collected: 09/16/2015 08:55
 Date Received: 10/08/2015 08:50
 Method: GAMMA_GS
 Analyst: BSW1
 Aliquot: 17.1929 g
 Prep Method: DOE HASL 300, 4.5.2.3/Ga-01

Project: CPRC0F15027
 Matrix: SOIL
 %Moisture: 2
 Prep Basis: "Dry Weight Corrected"
 SOP Ref: GL-RAD-A-013
 Instrument: WELL
 Count Time: 120 min
 Prep SOP Ref: GL-RAD-A-021

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137		3.27	pCi/g	+/-3.00	3.01	2.69	0.100
10198-40-0	Cobalt-60		3.50	pCi/g	+/-2.22	2.24	2.24	0.050
14683-23-9	Europium-152	U	1.55	pCi/g	+/-4.41	4.47	8.11	0.100
15585-10-1	Europium-154	U	-1.58	pCi/g	+/-3.74	3.81	6.69	0.100
14391-16-3	Europium-155	U	2.44	pCi/g	+/-7.46	7.54	12.8	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).

October 23, 2015
Rad

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758004	Date Collected: 09/16/2015 08:55	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2
Client ID: B31VN8		Prep Basis: "As Received"
Batch ID: 1513926	Method: C14_LSC	SOP Ref: GL-RAD-A-003
Run Date: 10/14/2015 17:54	Analyst: JXC5	Instrument: LSCGREEN
Data File: C1513926.xls	Aliquot: 0.5333 g	Count Time: 45 min
Prep Batch: 1513926	Prep Method: EPA EERF C-01 Modified	
Prep Date: 10/14/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	0.710	pCi/g	+/-2.32	2.32	3.95	5.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758004	Date Collected: 09/16/2015 08:55	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2
Client ID: B31VN8		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513929	Method: PUIISO_PLATE_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/20/2015 13:20	Analyst: JXC5	Instrument: 1246
Data File: S0382758004_PU.2C.gcnf	Aliquot: 0.02956 g	Count Time: 505 min
Prep Batch: 1513929	Prep Method: DOE EML HASL-300, Pu-11-	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/13/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.514	pCi/g	+/-0.677	0.679	0.863	1.00
OER-100-70	Plutonium-239/240		1.84	pCi/g	+/-1.10	1.11	0.862	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	54.7	67.0	pCi/g	81.6	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758004	Date Collected: 09/16/2015 08:55	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2
Client ID: B31VN8		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513934	Method: UIISO_IE_PRECIP_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/21/2015 11:13	Analyst: JXC5	Instrument: 1009
Data File: S0382758004_UU.2A.gcnf	Aliquot: 0.02956 g	Count Time: 999.9998 min
Prep Batch: 1513934	Prep Method: DOE EML HASL-300, U-02-R	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/13/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 <small>13968-55-3/13966-29-5</small>	Uranium-233/234		0.969	pCi/g	+/-0.559	0.571	0.663	1.00
15117-96-1/13982-7	Uranium-235/236		0.799	pCi/g	+/-0.522	0.531	0.509	1.00
7440-61-1	Uranium-238		0.969	pCi/g	+/-0.495	0.509	0.412	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	59.9	73.3	pCi/g	81.7	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758004	Date Collected: 09/16/2015 08:55	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2
Client ID: B31VN8	Method: SRTOT_SEP_PRECIP_GPC	Prep Basis: "Dry Weight Corrected"
Batch ID: 1513937	Analyst: JXC5	SOP Ref: GL-RAD-A-004
Run Date: 10/13/2015 12:39	Aliquot: 0.14779 g	Instrument: LB4100H3
Data File: S1513937.xls	Prep Method: EPA 905.0 Modified/DOE RP5	Count Time: 60 min
Prep Batch: 1513937		Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/13/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium		5720	pCi/g	+/-50.3	1470	4.05	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.70	8.10	mg	95.1	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758004	Date Collected: 09/16/2015 08:55	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2
Client ID: B31VN8		Prep Basis: "As Received"
Batch ID: 1513940	Method: DOE EML HASL-300,I-01 Mo	SOP Ref: GL-RAD-A-006
Run Date: 10/13/2015 11:30	Analyst: BSW1	Instrument: XRAY2
Data File: I382758004.CNF;1	Aliquot: 1.1375 g	Count Time: 120 min
Prep Batch: 1513940	Prep Method: DOE EML HASL-300,I-01 M	
Prep Date: 10/13/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I5046-84-1	Iodine-129	U	0.0103	pCi/g	+/-0.514	0.514	0.950	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

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758004	Date Collected: 09/16/2015 08:55	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2
Client ID: B31VN8		Prep Basis: "As Received"
Batch ID: 1513944	Method: TC99_EIE_LSC	SOP Ref: GL-RAD-A-059
Run Date: 10/20/2015 07:42	Analyst: JXC5	Instrument: LSCGREEN
Data File: E1513944R.xls	Aliquot: 2.2113 g	Count Time: 90 min
Prep Batch: 1513944	Prep Method: DOE EML HASL-300, Tc-02-	
Prep Date: 10/13/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	0.628	pCi/g	+/-0.813	0.816	1.37	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	3.06E+05	5.23E+05	CPM	58.5	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758004	Date Collected: 09/16/2015 08:55	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2
Client ID: B31VN8		Prep Basis: "As Received"
Batch ID: 1513946	Method: TRITIUM_DIST_LSC	SOP Ref: GL-RAD-A-002
Run Date: 10/14/2015 09:45	Analyst: BSW1	Instrument: LSCORANGE
Data File: T1513946R2.xls	Aliquot: 0.5023 g	Count Time: 35.02967 min
Prep Batch: 1513946	Prep Method: EPA 906.0 Modified	
Prep Date: 10/13/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-7.6	pCi/g	+/-9.31	9.31	18.4	30.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

October 23, 2015
Rad

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758004	Date Collected: 09/16/2015 08:55	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 2
Client ID: B31VN8		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513947	Method: AMCMISO_EIE_PREC_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/14/2015 21:45	Analyst: BSW1	Instrument: 1080
Data File: S0382758004_AM.1A.gcnf	Aliquot: 0.02956 g	Count Time: 239.9998 min
Prep Batch: 1513947	Prep Method: DOE EML HASL-300, Am-05	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/13/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.399	pCi/g	+/-0.683	0.685	0.598	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	68.7	72.4	pCi/g	94.9	(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).

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**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758005	Date Collected: 09/16/2015 09:15	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 4.4
Client ID: B31VP1		Prep Basis: "As Received"
Batch ID: 1513742	Method: ASTM D 2216 (Modified)	SOP Ref: GL-OA-E-020
Run Date: 10/09/2015 10:58	Analyst: BSW1	Instrument: R2-39039003
Data File:		Count Time:
Prep Batch: 1513742		
Prep Date: 10/09/2015 10:58		

CAS No.	Parmname	Qual	Result	Units	MDC	
	Moisture		4.41	percent +/-		
Surrogate/Tracer recovery		Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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Rad

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758005	Date Collected: 09/16/2015 09:15	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 4.4
Client ID: B31VP1		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513779	Method: GAMMA_GS	SOP Ref: GL-RAD-A-013
Run Date: 10/13/2015 12:28	Analyst: BSW1	Instrument: WELL
Data File: G382758005.CNF;1	Aliquot: 16.0577 g	Count Time: 120 min
Prep Batch: 1513779	Prep Method: DOE HASL 300, 4.5.2.3/Ga-01	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/09/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137		7.22	pCi/g	+/-3.36	3.41	3.04	0.100
10198-40-0	Cobalt-60		7.07	pCi/g	+/-3.03	3.09	2.56	0.050
14683-23-9	Europium-152	U	2.03	pCi/g	+/-4.70	4.79	8.68	0.100
15585-10-1	Europium-154	U	0.536	pCi/g	+/-4.27	4.27	8.47	0.100
14391-16-3	Europium-155	U	-1.76	pCi/g	+/-7.31	7.36	12.3	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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758005	Date Collected: 09/16/2015 09:15	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 4.4
Client ID: B31VP1		Prep Basis: "As Received"
Batch ID: 1513926	Method: C14_LSC	SOP Ref: GL-RAD-A-003
Run Date: 10/14/2015 18:42	Analyst: JXC5	Instrument: LSCGREEN
Data File: C1513926.xls	Aliquot: 0.6632 g	Count Time: 45 min
Prep Batch: 1513926	Prep Method: EPA EERF C-01 Modified	
Prep Date: 10/14/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	0.565	pCi/g	+/-1.86	1.86	3.17	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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758005	Date Collected: 09/16/2015 09:15	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 4.4
Client ID: B31VP1		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513929	Method: PUIISO_PLATE_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/19/2015 15:03	Analyst: JXC5	Instrument: 1246
Data File: S0382758005_PU.2B.gcnf	Aliquot: 0.02278 g	Count Time: 1000 min
Prep Batch: 1513929	Prep Method: DOE EML HASL-300, Pu-11-	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/13/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238		15.9	pCi/g	+/-2.42	2.78	0.720	1.00
OER-100-70	Plutonium-239/240		1.50	pCi/g	+/-0.824	0.834	0.719	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	72.7	86.9	pCi/g	83.6	(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**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758005	Date Collected: 09/16/2015 09:15	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 4.4
Client ID: B31VP1		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513934	Method: UIISO_IE_PRECIP_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/21/2015 11:13	Analyst: JXC5	Instrument: 1010
Data File: S0382758005_UU.2A.gcnf	Aliquot: 0.02278 g	Count Time: 999.9998 min
Prep Batch: 1513934	Prep Method: DOE EML HASL-300, U-02-R	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/13/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 <small>13968-55-3/13966-29-5</small>	Uranium-233/234		1.09	pCi/g	+/-0.757	0.769	1.05	1.00
15117-96-1/13982-7	Uranium-235/236		0.929	pCi/g	+/-0.641	0.651	0.646	1.00
7440-61-1	Uranium-238		1.84	pCi/g	+/-0.769	0.802	0.654	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	91.2	95.1	pCi/g	95.8	(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

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758005	Date Collected: 09/16/2015 09:15	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 4.4
Client ID: B31VP1	Method: SRTOT_SEP_PRECIP_GPC	Prep Basis: "Dry Weight Corrected"
Batch ID: 1513937	Analyst: JXC5	SOP Ref: GL-RAD-A-004
Run Date: 10/13/2015 12:39	Aliquot: 0.11391 g	Instrument: LB4100H4
Data File: S1513937.xls	Prep Method: EPA 905.0 Modified/DOE RP5	Count Time: 60 min
Prep Batch: 1513937		Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/13/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium		5720	pCi/g	+/-59.3	1480	4.73	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.50	8.10	mg	92.6	(25%-125%)

Comments:

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

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758005	Date Collected: 09/16/2015 09:15	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 4.4
Client ID: B31VP1		Prep Basis: "As Received"
Batch ID: 1513940	Method: DOE EML HASL-300,I-01 Mo	SOP Ref: GL-RAD-A-006
Run Date: 10/13/2015 11:46	Analyst: BSW1	Instrument: XRAY4
Data File: I382758005.CNF;1	Aliquot: 1.0185 g	Count Time: 120 min
Prep Batch: 1513940	Prep Method: DOE EML HASL-300,I-01 M	
Prep Date: 10/13/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I5046-84-1	Iodine-129	U	0.132	pCi/g	+/-0.375	0.380	0.775	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

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758005	Date Collected: 09/16/2015 09:15	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 4.4
Client ID: B31VP1		Prep Basis: "As Received"
Batch ID: 1513944	Method: TC99_EIE_LSC	SOP Ref: GL-RAD-A-059
Run Date: 10/20/2015 09:16	Analyst: JXC5	Instrument: LSCGREEN
Data File: E1513944R.xls	Aliquot: 2.1587 g	Count Time: 90 min
Prep Batch: 1513944	Prep Method: DOE EML HASL-300, Tc-02-	
Prep Date: 10/13/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	0.981	pCi/g	+/-0.686	0.695	1.14	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	3.86E+05	5.23E+05	CPM	73.9	(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).

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**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758005	Date Collected: 09/16/2015 09:15	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 4.4
Client ID: B31VP1		Prep Basis: "As Received"
Batch ID: 1513946	Method: TRITIUM_DIST_LSC	SOP Ref: GL-RAD-A-002
Run Date: 10/14/2015 10:22	Analyst: BSW1	Instrument: LSCORANGE
Data File: T1513946R2.xls	Aliquot: 0.581 g	Count Time: 35.02955 min
Prep Batch: 1513946	Prep Method: EPA 906.0 Modified	
Prep Date: 10/13/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	5.77	pCi/g	+/-9.49	9.58	16.4	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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758005	Date Collected: 09/16/2015 09:15	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 4.4
Client ID: B31VP1		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513947	Method: AMCMISO_EIE_PREC_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/14/2015 21:45	Analyst: BSW1	Instrument: 1081
Data File: S0382758005_AM.1A.gcnf	Aliquot: 0.02278 g	Count Time: 239.9998 min
Prep Batch: 1513947	Prep Method: DOE EML HASL-300, Am-05	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/13/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241		5.09	pCi/g	+/-2.29	2.36	1.59	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	96.9	93.9	pCi/g	103	(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**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758006	Date Collected: 09/16/2015 09:30	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 5.4
Client ID: B31VP4		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514344	Method: AMCMISO_EIE_PREC_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 21:37	Analyst: HAKB	Instrument: 1238
Data File: S0382758006_AM.1A.gcnf	Aliquot: 0.103 g	Count Time: 240 min
Prep Batch: 1514344	Prep Method: DOE EML HASL-300, Am-05	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.063	pCi/g	+/-0.236	0.236	0.397	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	17.9	20.8	pCi/g	85.9	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758006	Date Collected: 09/16/2015 09:30	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 5.4
Client ID: B31VP4		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514345	Method: PUIISO_PLATE_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 21:35	Analyst: HAKB	Instrument: 1219
Data File: S0382758006_PU.1A.gcnf	Aliquot: 0.103 g	Count Time: 240 min
Prep Batch: 1514345	Prep Method: DOE EML HASL-300, Pu-11-	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.0869	pCi/g	+/-0.297	0.297	0.551	1.00
OER-100-70	Plutonium-239/240	U	-0.0568	pCi/g	+/-0.257	0.257	0.647	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	16.2	19.1	pCi/g	84.8	(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**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758006	Date Collected: 09/16/2015 09:30	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 5.4
Client ID: B31VP4		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514346	Method: UIISO_IE_PRECIP_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 11:08	Analyst: HAKB	Instrument: 1143
Data File: S0382758006_UU.1A.gcnf	Aliquot: 0.103 g	Count Time: 240 min
Prep Batch: 1514346	Prep Method: DOE EML HASL-300, U-02-R	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 <small>13968-55-3/13966-29-5</small>	Uranium-233/234		0.990	pCi/g	+/-0.582	0.604	0.500	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.0938	pCi/g	+/-0.264	0.264	0.281	1.00
7440-61-1	Uranium-238		0.379	pCi/g	+/-0.366	0.371	0.228	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	21.0	20.6	pCi/g	102	(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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Sample Summary

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758006	Date Collected: 09/16/2015 09:30	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 5.4
Client ID: B31VP4	Method: SRTOT_SEP_PRECIP_GPC	Prep Basis: "Dry Weight Corrected"
Batch ID: 1513949	Analyst: KSD1	SOP Ref: GL-RAD-A-004
Run Date: 10/22/2015 12:09	Aliquot: 0.314 g	Instrument: PIC9C
Data File: S1513949r1.xls	Prep Method: EPA 905.0 Modified/DOE RP5	Count Time: 60 min
Prep Batch: 1513949		Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/21/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium		2160	pCi/g	+/-22.4	547	1.45	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.80	8.10	mg	96.3	(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: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758006	Date Collected: 09/16/2015 09:30	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 5.4
Client ID: B31VP4		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513919	Method: GAMMA_GS	SOP Ref: GL-RAD-A-013
Run Date: 10/12/2015 11:26	Analyst: MXR1	Instrument: GAM20
Data File: G382758006.CNF;1	Aliquot: 34.502 g	Count Time: 1000 min
Prep Batch: 1513919	Prep Method: DOE HASL 300, 4.5.2.3/Ga-01	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/12/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137		0.0667	pCi/g	+/-0.0389	0.0393	0.0459	0.100
10198-40-0	Cobalt-60	U	-8.76E-05	pCi/g	+/-0.020	0.020	0.0354	0.050
14683-23-9	Europium-152	U	-0.0121	pCi/g	+/-0.109	0.109	0.175	0.100
15585-10-1	Europium-154	U	-0.0267	pCi/g	+/-0.0615	0.0627	0.107	0.100
14391-16-3	Europium-155	U	-0.103	pCi/g	+/-0.214	0.219	0.370	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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758006	Date Collected: 09/16/2015 09:30	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 5.4
Client ID: B31VP4		Prep Basis: "As Received"
Batch ID: 1514310	Method: DOE EML HASL-300,I-01 Mo	SOP Ref: GL-RAD-A-006
Run Date: 10/19/2015 07:15	Analyst: MJH1	Instrument: XRAY4
Data File: I382758006.CNF;2	Aliquot: 1.049 g	Count Time: 60 min
Prep Batch: 1514310	Prep Method: DOE EML HASL-300,I-01 M	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.19	pCi/g	+/-0.627	0.633	1.16	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**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758006	Date Collected: 09/16/2015 09:30	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 5.4
Client ID: B31VP4		Prep Basis: "As Received"
Batch ID: 1513953	Method: C14_LSC	SOP Ref: GL-RAD-A-003
Run Date: 10/15/2015 19:46	Analyst: TXJ1	Instrument: LSCBLUE
Data File: C1513953.xls	Aliquot: 0.506 g	Count Time: 45 min
Prep Batch: 1513953	Prep Method: EPA EERF C-01 Modified	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-1.56	pCi/g	+/-2.11	2.11	3.70	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).

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Rad

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758006	Date Collected: 09/16/2015 09:30	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 5.4
Client ID: B31VP4		Prep Basis: "As Received"
Batch ID: 1513956	Method: TRITIUM_DIST_LSC	SOP Ref: GL-RAD-A-002
Run Date: 10/15/2015 18:06	Analyst: GXR1	Instrument: LSCGOLD
Data File: T1513956.xls	Aliquot: 1.253 g	Count Time: 20 min
Prep Batch: 1513956	Prep Method: EPA 906.0 Modified	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	15.7	pCi/g	+/-13.5	14.0	22.2	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).

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Certificate of Analysis
Sample Summary

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758006	Date Collected: 09/16/2015 09:30	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 5.4
Client ID: B31VP4		Prep Basis: "As Received"
Batch ID: 1513958	Method: TC99_EIE_LSC	SOP Ref: GL-RAD-A-059
Run Date: 10/21/2015 09:39	Analyst: MYM1	Instrument: LSCGOLD
Data File: E1513958R.xls	Aliquot: 2.306 g	Count Time: 30 min
Prep Batch: 1513958	Prep Method: DOE EML HASL-300, Tc-02-	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		3.40	pCi/g	+/-0.832	0.919	1.26	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	36300	37700	CPM	96.1	(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**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758006	Date Collected: 09/16/2015 09:30	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 5.4
Client ID: B31VP4		Prep Basis: "As Received"
Batch ID: 1513873	Method: ASTM D 2216 (Modified)	SOP Ref: GL-OA-E-020
Run Date: 10/09/2015 11:23	Analyst: LYTI	Instrument: SP-39020004
Data File:		Count Time:
Prep Batch: 1513873		
Prep Date: 10/09/2015 11:23		

CAS No.	Parmname	Qual	Result	Units	MDC	
	Moisture		5.37	percent +/-		
Surrogate/Tracer recovery		Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758007	Date Collected: 09/16/2015 10:14	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 17.3
Client ID: B31VR0		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514344	Method: AMCMISO_EIE_PREC_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 21:37	Analyst: HAKB	Instrument: 1240
Data File: S0382758007_AM.1A.gcnf	Aliquot: 0.114 g	Count Time: 240 min
Prep Batch: 1514344	Prep Method: DOE EML HASL-300, Am-05	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.0202	pCi/g	+/-0.211	0.212	0.441	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	17.0	18.8	pCi/g	90.8	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758007	Date Collected: 09/16/2015 10:14	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 17.3
Client ID: B31VR0		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514345	Method: PUIISO_PLATE_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 21:35	Analyst: HAKB	Instrument: 1220
Data File: S0382758007_PU.1A.gcnf	Aliquot: 0.114 g	Count Time: 240 min
Prep Batch: 1514345	Prep Method: DOE EML HASL-300, Pu-11-	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.051	pCi/g	+/-0.191	0.191	0.322	1.00
OER-100-70	Plutonium-239/240	U	-0.142	pCi/g	+/-0.220	0.220	0.635	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	17.7	17.3	pCi/g	102	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758007	Date Collected: 09/16/2015 10:14	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 17.3
Client ID: B31VR0		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514346	Method: UIISO_IE_PRECIP_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 11:08	Analyst: HAKB	Instrument: 1144
Data File: S0382758007_UU.1A.gcnf	Aliquot: 0.114 g	Count Time: 240 min
Prep Batch: 1514346	Prep Method: DOE EML HASL-300, U-02-R	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 <small>13968-55-3/13966-29-5</small>	Uranium-233/234	U	0.389	pCi/g	+/-0.380	0.385	0.470	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.166	pCi/g	+/-0.284	0.285	0.249	1.00
7440-61-1	Uranium-238		0.488	pCi/g	+/-0.399	0.407	0.410	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	17.7	18.6	pCi/g	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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758007	Date Collected: 09/16/2015 10:14	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 17.3
Client ID: B31VR0		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513949	Method: SRTOT_SEP_PRECIP_GPC	SOP Ref: GL-RAD-A-004
Run Date: 10/22/2015 12:09	Analyst: KSD1	Instrument: PIC9D
Data File: S1513949r1.xls	Aliquot: 0.301 g	Count Time: 60 min
Prep Batch: 1513949	Prep Method: EPA 905.0 Modified/DOE RP5	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/21/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium		11.9	pCi/g	+/-1.96	3.68	1.73	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.60	8.10	mg	93.8	(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: GEL382758
 Lab Sample ID: 382758007
 Client ID: B31VR0
 Batch ID: 1513919
 Run Date: 10/12/2015 11:26
 Data File: G382758007.CNF;1
 Prep Batch: 1513919
 Prep Date: 10/12/2015 00:00

Client: CPRC001
 Date Collected: 09/16/2015 10:14
 Date Received: 10/08/2015 08:50
 Method: GAMMA_GS
 Analyst: MXR1
 Aliquot: 42.363 g
 Prep Method: DOE HASL 300, 4.5.2.3/Ga-01

Project: CPRC0F15027
 Matrix: SOIL
 %Moisture: 17.3
 Prep Basis: "Dry Weight Corrected"
 SOP Ref: GL-RAD-A-013
 Instrument: GAM29
 Count Time: 1000 min
 Prep SOP Ref: GL-RAD-A-021

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.00861	pCi/g	+/-0.0151	0.0156	0.0261	0.100
10198-40-0	Cobalt-60	U	0.00132	pCi/g	+/-0.0164	0.0165	0.0286	0.050
14683-23-9	Europium-152	U	-0.0234	pCi/g	+/-0.0343	0.0359	0.0567	0.100
15585-10-1	Europium-154	U	-0.00615	pCi/g	+/-0.0474	0.0475	0.0817	0.100
14391-16-3	Europium-155	U	0.00792	pCi/g	+/-0.0532	0.0532	0.0602	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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758007	Date Collected: 09/16/2015 10:14	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 17.3
Client ID: B31VR0		Prep Basis: "As Received"
Batch ID: 1514310	Method: DOE EML HASL-300,I-01 Mo	SOP Ref: GL-RAD-A-006
Run Date: 10/19/2015 07:16	Analyst: MJH1	Instrument: XRAY5
Data File: I382758007.CNF;1	Aliquot: 1.036 g	Count Time: 30 min
Prep Batch: 1514310	Prep Method: DOE EML HASL-300,I-01 M	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I5046-84-1	Iodine-129	U	0.292	pCi/g	+/-0.573	0.588	2.15	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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758007	Date Collected: 09/16/2015 10:14	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 17.3
Client ID: B31VR0		Prep Basis: "As Received"
Batch ID: 1513953	Method: C14_LSC	SOP Ref: GL-RAD-A-003
Run Date: 10/15/2015 20:33	Analyst: TXJ1	Instrument: LSCBLUE
Data File: C1513953.xls	Aliquot: 0.505 g	Count Time: 45 min
Prep Batch: 1513953	Prep Method: EPA EERF C-01 Modified	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-0.637	pCi/g	+/-2.14	2.14	3.71	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).

October 23, 2015
Rad

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758007	Date Collected: 09/16/2015 10:14	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 17.3
Client ID: B31VR0		Prep Basis: "As Received"
Batch ID: 1513956	Method: TRITIUM_DIST_LSC	SOP Ref: GL-RAD-A-002
Run Date: 10/15/2015 18:27	Analyst: GXR1	Instrument: LSCGOLD
Data File: T1513956.xls	Aliquot: 1.25 g	Count Time: 20 min
Prep Batch: 1513956	Prep Method: EPA 906.0 Modified	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-2.61	pCi/g	+/-12.1	12.1	22.2	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).

October 23, 2015
Rad

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758
Lab Sample ID: 382758007

Client: CPRC001
Date Collected: 09/16/2015 10:14
Date Received: 10/08/2015 08:50

Project: CPRC0F15027
Matrix: SOIL
%Moisture: 17.3

Client ID: B31VR0
Batch ID: 1513958
Run Date: 10/21/2015 10:11
Data File: E1513958R.xls
Prep Batch: 1513958
Prep Date: 10/15/2015 00:00

Method: TC99_EIE_LSC
Analyst: MYM1
Aliquot: 2.249 g
Prep Method: DOE EML HASL-300, Tc-02-

Prep Basis: "As Received"
SOP Ref: GL-RAD-A-059
Instrument: LSCGOLD
Count Time: 30 min

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	0.0969	pCi/g	+/-0.756	0.756	1.30	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	36600	37700	CPM	97	(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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Sample Summary

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758007	Date Collected: 09/16/2015 10:14	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 17.3
Client ID: B31VR0		Prep Basis: "As Received"
Batch ID: 1513873	Method: ASTM D 2216 (Modified)	SOP Ref: GL-OA-E-020
Run Date: 10/09/2015 11:23	Analyst: LYTI	Instrument: SP-39020004
Data File:		Count Time:
Prep Batch: 1513873		
Prep Date: 10/09/2015 11:23		

CAS No.	Parmname	Qual	Result	Units	MDC	
	Moisture		17.3	percent +/-		
Surrogate/Tracer recovery		Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758008	Date Collected: 09/16/2015 09:50	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 8.7
Client ID: B31VP7		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514344	Method: AMCMISO_EIE_PREC_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 21:37	Analyst: HAKB	Instrument: 1243
Data File: S0382758008_AM.1A.gcnf	Aliquot: 0.107 g	Count Time: 240 min
Prep Batch: 1514344	Prep Method: DOE EML HASL-300, Am-05	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.018	pCi/g	+/-0.188	0.189	0.393	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	22.2	20.0	pCi/g	111	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758008	Date Collected: 09/16/2015 09:50	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 8.7
Client ID: B31VP7		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514345	Method: PUIISO_PLATE_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 21:36	Analyst: HAKB	Instrument: 1222
Data File: S0382758008_PU.1A.gcnf	Aliquot: 0.107 g	Count Time: 240 min
Prep Batch: 1514345	Prep Method: DOE EML HASL-300, Pu-11-	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.00346	pCi/g	+/-0.256	0.257	0.570	1.00
OER-100-70	Plutonium-239/240	U	-0.121	pCi/g	+/-0.275	0.275	0.750	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	14.9	18.4	pCi/g	81	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758008	Date Collected: 09/16/2015 09:50	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 8.7
Client ID: B31VP7		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514346	Method: UIISO_IE_PRECIP_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 11:08	Analyst: HAKB	Instrument: 1147
Data File: S0382758008_UU.1A.gcnf	Aliquot: 0.107 g	Count Time: 240 min
Prep Batch: 1514346	Prep Method: DOE EML HASL-300, U-02-R	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 <small>13968-55-3/13966-29-5</small>	Uranium-233/234		0.870	pCi/g	+/-0.563	0.582	0.519	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.0974	pCi/g	+/-0.274	0.274	0.292	1.00
7440-61-1	Uranium-238		0.533	pCi/g	+/-0.440	0.449	0.378	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	17.1	19.8	pCi/g	86.4	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758008	Date Collected: 09/16/2015 09:50	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 8.7
Client ID: B31VP7	Method: SRTOT_SEP_PRECIP_GPC	Prep Basis: "Dry Weight Corrected"
Batch ID: 1513949	Analyst: KSD1	SOP Ref: GL-RAD-A-004
Run Date: 10/22/2015 12:09	Aliquot: 0.314 g	Instrument: PIC10B
Data File: S1513949r1.xls	Prep Method: EPA 905.0 Modified/DOE RP5	Count Time: 60 min
Prep Batch: 1513949		Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/21/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium		595	pCi/g	+/-12.2	151	1.52	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.40	8.10	mg	91.4	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758008	Date Collected: 09/16/2015 09:50	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 8.7
Client ID: B31VP7		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513919	Method: GAMMA_GS	SOP Ref: GL-RAD-A-013
Run Date: 10/12/2015 11:27	Analyst: MXR1	Instrument: GAM30
Data File: G382758008.CNF;1	Aliquot: 33.788 g	Count Time: 1000 min
Prep Batch: 1513919	Prep Method: DOE HASL 300, 4.5.2.3/Ga-01	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/12/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.00323	pCi/g	+/-0.0372	0.0372	0.0337	0.100
10198-40-0	Cobalt-60	U	0.0317	pCi/g	+/-0.0259	0.0297	0.0374	0.050
14683-23-9	Europium-152	U	0.0387	pCi/g	+/-0.0627	0.0652	0.106	0.100
15585-10-1	Europium-154	U	-0.02	pCi/g	+/-0.0656	0.0662	0.095	0.100
14391-16-3	Europium-155	U	0.0777	pCi/g	+/-0.116	0.121	0.194	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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758008	Date Collected: 09/16/2015 09:50	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 8.7
Client ID: B31VP7		Prep Basis: "As Received"
Batch ID: 1514310	Method: DOE EML HASL-300,I-01 Mo	SOP Ref: GL-RAD-A-006
Run Date: 10/19/2015 08:12	Analyst: MJH1	Instrument: XRAY1
Data File: I382758008.CNF;1	Aliquot: 1.096 g	Count Time: 60 min
Prep Batch: 1514310	Prep Method: DOE EML HASL-300,I-01 M	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I5046-84-1	Iodine-129	U	0.283	pCi/g	+/-0.671	0.684	1.33	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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758008	Date Collected: 09/16/2015 09:50	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 8.7
Client ID: B31VP7		Prep Basis: "As Received"
Batch ID: 1513953	Method: C14_LSC	SOP Ref: GL-RAD-A-003
Run Date: 10/15/2015 21:20	Analyst: TXJ1	Instrument: LSCBLUE
Data File: C1513953.xls	Aliquot: 0.502 g	Count Time: 45 min
Prep Batch: 1513953	Prep Method: EPA EERF C-01 Modified	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	0.212	pCi/g	+/-2.17	2.17	3.73	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).

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Certificate of Analysis
Sample Summary

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758008	Date Collected: 09/16/2015 09:50	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 8.7
Client ID: B31VP7		Prep Basis: "As Received"
Batch ID: 1513956	Method: TRITIUM_DIST_LSC	SOP Ref: GL-RAD-A-002
Run Date: 10/15/2015 18:49	Analyst: GXR1	Instrument: LSCGOLD
Data File: T1513956.xls	Aliquot: 1.255 g	Count Time: 20 min
Prep Batch: 1513956	Prep Method: EPA 906.0 Modified	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	4.07	pCi/g	+/-12.2	12.3	21.5	30.0
Surrogate/Tracer recovery		Result	Nominal	Units	Recovery%	Acceptable Limits		

Comments:

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

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758008	Date Collected: 09/16/2015 09:50	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 8.7
Client ID: B31VP7		Prep Basis: "As Received"
Batch ID: 1513958	Method: TC99_EIE_LSC	SOP Ref: GL-RAD-A-059
Run Date: 10/21/2015 10:44	Analyst: MYM1	Instrument: LSCGOLD
Data File: E1513958R.xls	Aliquot: 2.804 g	Count Time: 30 min
Prep Batch: 1513958	Prep Method: DOE EML HASL-300, Tc-02-	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		1.14	pCi/g	+/-0.640	0.653	1.04	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	36300	37700	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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758008	Date Collected: 09/16/2015 09:50	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 8.7
Client ID: B31VP7		Prep Basis: "As Received"
Batch ID: 1513873	Method: ASTM D 2216 (Modified)	SOP Ref: GL-OA-E-020
Run Date: 10/09/2015 11:23	Analyst: LYTI	Instrument: SP-39020004
Data File:		Count Time:
Prep Batch: 1513873		
Prep Date: 10/09/2015 11:23		

CAS No.	Parmname	Qual	Result	Units	MDC	
	Moisture		8.68	percent +/-		
Surrogate/Tracer recovery		Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758009	Date Collected: 08/27/2015 12:17	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 9.3
Client ID: B31VR3		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514344	Method: AMCMISO_EIE_PREC_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 21:37	Analyst: HAKB	Instrument: 1244
Data File: S0382758009_AM.1A.gcnf	Aliquot: 0.104 g	Count Time: 240 min
Prep Batch: 1514344	Prep Method: DOE EML HASL-300, Am-05	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.0441	pCi/g	+/-0.245	0.245	0.470	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	18.4	20.6	pCi/g	89.5	(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).

October 23, 2015
Rad

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758009	Date Collected: 08/27/2015 12:17	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 9.3
Client ID: B31VR3		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514345	Method: PUIISO_PLATE_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 21:36	Analyst: HAKB	Instrument: 1223
Data File: S0382758009_PU.1A.gcnf	Aliquot: 0.104 g	Count Time: 240 min
Prep Batch: 1514345	Prep Method: DOE EML HASL-300, Pu-11-	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.0958	pCi/g	+/-0.269	0.270	0.288	1.00
OER-100-70	Plutonium-239/240	U	0.111	pCi/g	+/-0.496	0.496	0.974	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	13.9	18.9	pCi/g	73.2	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758009	Date Collected: 08/27/2015 12:17	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 9.3
Client ID: B31VR3		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514346	Method: UIISO_IE_PRECIP_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 11:08	Analyst: HAKB	Instrument: 1148
Data File: S0382758009_UU.1A.gcnf	Aliquot: 0.104 g	Count Time: 240 min
Prep Batch: 1514346	Prep Method: DOE EML HASL-300, U-02-R	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 <small>13968-55-3/13966-29-5</small>	Uranium-233/234		0.939	pCi/g	+/-0.542	0.563	0.353	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.116	pCi/g	+/-0.320	0.321	0.556	1.00
7440-61-1	Uranium-238	U	0.406	pCi/g	+/-0.386	0.392	0.408	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	20.3	20.4	pCi/g	99.6	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758009	Date Collected: 08/27/2015 12:17	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 9.3
Client ID: B31VR3		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513949	Method: SRTOT_SEP_PRECIP_GPC	SOP Ref: GL-RAD-A-004
Run Date: 10/22/2015 13:58	Analyst: KSD1	Instrument: PIC1C
Data File: S1513949r1.xls	Aliquot: 0.337 g	Count Time: 60 min
Prep Batch: 1513949	Prep Method: EPA 905.0 Modified/DOE RP5	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/21/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	1.39	pCi/g	+/-0.970	1.03	1.51	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.70	8.10	mg	95.1	(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).

October 23, 2015
Rad

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758009	Date Collected: 08/27/2015 12:17	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 9.3
Client ID: B31VR3		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513919	Method: GAMMA_GS	SOP Ref: GL-RAD-A-013
Run Date: 10/12/2015 11:27	Analyst: MXR1	Instrument: GAM36
Data File: G382758009.CNF;1	Aliquot: 38.764 g	Count Time: 1000 min
Prep Batch: 1513919	Prep Method: DOE HASL 300, 4.5.2.3/Ga-01	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/12/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	-0.0235	pCi/g	+/-0.0223	0.0248	0.0356	0.100
10198-40-0	Cobalt-60	U	-0.0216	pCi/g	+/-0.0251	0.027	0.0389	0.050
14683-23-9	Europium-152	U	-0.0484	pCi/g	+/-0.0496	0.0544	0.0843	0.100
15585-10-1	Europium-154	U	0.0283	pCi/g	+/-0.0771	0.0781	0.134	0.100
14391-16-3	Europium-155	U	0.0385	pCi/g	+/-0.0457	0.049	0.0807	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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758009	Date Collected: 08/27/2015 12:17	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 9.3
Client ID: B31VR3		Prep Basis: "As Received"
Batch ID: 1514310	Method: DOE EML HASL-300,I-01 Mo	SOP Ref: GL-RAD-A-006
Run Date: 10/19/2015 08:12	Analyst: MJH1	Instrument: XRAY5
Data File: I382758009.CNF;1	Aliquot: 1.083 g	Count Time: 60 min
Prep Batch: 1514310	Prep Method: DOE EML HASL-300,I-01 M	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I5046-84-1	Iodine-129	U	-0.443	pCi/g	+/-0.501	0.542	0.379	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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758009	Date Collected: 08/27/2015 12:17	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 9.3
Client ID: B31VR3		Prep Basis: "As Received"
Batch ID: 1513953	Method: C14_LSC	SOP Ref: GL-RAD-A-003
Run Date: 10/15/2015 22:07	Analyst: TXJ1	Instrument: LSCBLUE
Data File: C1513953.xls	Aliquot: 0.502 g	Count Time: 45 min
Prep Batch: 1513953	Prep Method: EPA EERF C-01 Modified	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-0.796	pCi/g	+/-2.15	2.15	3.73	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).

October 23, 2015
Rad

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758
Lab Sample ID: 382758009

Client: CPRC001
Date Collected: 08/27/2015 12:17
Date Received: 10/08/2015 08:50

Project: CPRC0F15027
Matrix: SOIL
%Moisture: 9.3

Client ID: B31VR3
Batch ID: 1513956
Run Date: 10/15/2015 19:10
Data File: T1513956.xls
Prep Batch: 1513956
Prep Date: 10/15/2015 00:00

Method: TRITIUM_DIST_LSC
Analyst: GXR1
Aliquot: 1.258 g
Prep Method: EPA 906.0 Modified

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

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	0.521	pCi/g	+/-12.3	12.3	22.1	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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758009	Date Collected: 08/27/2015 12:17	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 9.3
Client ID: B31VR3		Prep Basis: "As Received"
Batch ID: 1513958	Method: TC99_EIE_LSC	SOP Ref: GL-RAD-A-059
Run Date: 10/21/2015 11:16	Analyst: MYM1	Instrument: LSCGOLD
Data File: E1513958R.xls	Aliquot: 2.616 g	Count Time: 30 min
Prep Batch: 1513958	Prep Method: DOE EML HASL-300, Tc-02-	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	0.280	pCi/g	+/-0.662	0.663	1.13	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	35700	37700	CPM	94.7	(15%-125%)

Comments:

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

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758009	Date Collected: 08/27/2015 12:17	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 9.3
Client ID: B31VR3		Prep Basis: "As Received"
Batch ID: 1513873	Method: ASTM D 2216 (Modified)	SOP Ref: GL-OA-E-020
Run Date: 10/09/2015 11:23	Analyst: LYTI	Instrument: SP-39020004
Data File:		Count Time:
Prep Batch: 1513873		
Prep Date: 10/09/2015 11:23		

CAS No.	Parmname	Qual	Result	Units	MDC	
	Moisture		9.30	percent +/-		
Surrogate/Tracer recovery		Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758010	Date Collected: 09/16/2015 11:45	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 15.8
Client ID: B31VR6		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514344	Method: AMCMISO_EIE_PREC_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 21:38	Analyst: HAKB	Instrument: 1245
Data File: S0382758010_AM.1A.gcnf	Aliquot: 0.115 g	Count Time: 240 min
Prep Batch: 1514344	Prep Method: DOE EML HASL-300, Am-05	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	-0.0456	pCi/g	+/-0.138	0.138	0.387	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	18.9	18.6	pCi/g	101	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758010	Date Collected: 09/16/2015 11:45	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 15.8
Client ID: B31VR6		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514345	Method: PUIISO_PLATE_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 21:36	Analyst: HAKB	Instrument: 1225
Data File: S0382758010_PU.1A.gcnf	Aliquot: 0.115 g	Count Time: 240 min
Prep Batch: 1514345	Prep Method: DOE EML HASL-300, Pu-11-	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.00538	pCi/g	+/-0.247	0.247	0.543	1.00
OER-100-70	Plutonium-239/240	U	-0.156	pCi/g	+/-0.267	0.267	0.714	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	15.9	17.1	pCi/g	92.7	(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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758010	Date Collected: 09/16/2015 11:45	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 15.8
Client ID: B31VR6		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514346	Method: UIISO_IE_PRECIP_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 11:08	Analyst: HAKB	Instrument: 1149
Data File: S0382758010_UU.1A.gcnf	Aliquot: 0.115 g	Count Time: 240 min
Prep Batch: 1514346	Prep Method: DOE EML HASL-300, U-02-R	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 <small>13968-55-3/13966-29-5</small>	Uranium-233/234		0.490	pCi/g	+/-0.374	0.382	0.303	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.00	pCi/g	+/-0.157	0.158	0.234	1.00
7440-61-1	Uranium-238	U	0.301	pCi/g	+/-0.306	0.310	0.303	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	18.8	18.4	pCi/g	102	(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

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758010	Date Collected: 09/16/2015 11:45	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 15.8
Client ID: B31VR6	Method: SRTOT_SEP_PRECIP_GPC	Prep Basis: "Dry Weight Corrected"
Batch ID: 1513949	Analyst: KSD1	SOP Ref: GL-RAD-A-004
Run Date: 10/22/2015 12:09	Aliquot: 0.331 g	Instrument: PIC10D
Data File: S1513949r1.xls	Prep Method: EPA 905.0 Modified/DOE RP5	Count Time: 60 min
Prep Batch: 1513949		Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/21/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	0.593	pCi/g	+/-0.808	0.822	1.38	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.90	8.10	mg	97.5	(25%-125%)

Comments:

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

October 23, 2015
Rad

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758010	Date Collected: 09/16/2015 11:45	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 15.8
Client ID: B31VR6		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513919	Method: GAMMA_GS	SOP Ref: GL-RAD-A-013
Run Date: 10/12/2015 11:27	Analyst: MXR1	Instrument: GAM40
Data File: G382758010.CNF;1	Aliquot: 43.68 g	Count Time: 1000 min
Prep Batch: 1513919	Prep Method: DOE HASL 300, 4.5.2.3/Ga-01	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/12/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.00349	pCi/g	+/-0.0141	0.0142	0.0253	0.100
10198-40-0	Cobalt-60	U	0.00337	pCi/g	+/-0.016	0.0161	0.0293	0.050
14683-23-9	Europium-152	U	0.0228	pCi/g	+/-0.0402	0.0416	0.0626	0.100
15585-10-1	Europium-154	U	-0.0217	pCi/g	+/-0.0541	0.055	0.0876	0.100
14391-16-3	Europium-155	U	0.0285	pCi/g	+/-0.0363	0.0386	0.0625	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).

October 23, 2015

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Certificate of Analysis
Sample Summary

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758010	Date Collected: 09/16/2015 11:45	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 15.8
Client ID: B31VR6		Prep Basis: "As Received"
Batch ID: 1514310	Method: DOE EML HASL-300,I-01 Mo	SOP Ref: GL-RAD-A-006
Run Date: 10/19/2015 09:28	Analyst: MJH1	Instrument: XRAY1
Data File: I382758010.CNF;1	Aliquot: 1.018 g	Count Time: 60 min
Prep Batch: 1514310	Prep Method: DOE EML HASL-300,I-01 M	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I5046-84-1	Iodine-129	U	-0.132	pCi/g	+/-0.763	0.766	1.38	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).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758010	Date Collected: 09/16/2015 11:45	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 15.8
Client ID: B31VR6		Prep Basis: "As Received"
Batch ID: 1513953	Method: C14_LSC	SOP Ref: GL-RAD-A-003
Run Date: 10/15/2015 22:55	Analyst: TXJ1	Instrument: LSCBLUE
Data File: C1513953.xls	Aliquot: 0.505 g	Count Time: 45 min
Prep Batch: 1513953	Prep Method: EPA EERF C-01 Modified	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-0.951	pCi/g	+/-2.13	2.13	3.71	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).

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Certificate of Analysis
Sample Summary

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758010	Date Collected: 09/16/2015 11:45	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 15.8
Client ID: B31VR6	Method: TRITIUM_DIST_LSC	Prep Basis: "As Received"
Batch ID: 1513956	Analyst: GXR1	SOP Ref: GL-RAD-A-002
Run Date: 10/15/2015 19:32	Aliquot: 1.257 g	Instrument: LSCGOLD
Data File: T1513956.xls	Prep Method: EPA 906.0 Modified	Count Time: 20 min
Prep Batch: 1513956		
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-3.09	pCi/g	+/-11.9	11.9	21.9	30.0
Surrogate/Tracer recovery		Result	Nominal	Units	Recovery%	Acceptable Limits		

Comments:

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

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**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758010	Date Collected: 09/16/2015 11:45	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 15.8
Client ID: B31VR6		Prep Basis: "As Received"
Batch ID: 1513958	Method: TC99_EIE_LSC	SOP Ref: GL-RAD-A-059
Run Date: 10/21/2015 11:48	Analyst: MYM1	Instrument: LSCGOLD
Data File: E1513958R.xls	Aliquot: 2.013 g	Count Time: 30 min
Prep Batch: 1513958	Prep Method: DOE EML HASL-300, Tc-02-	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	0.121	pCi/g	+/-0.843	0.843	1.45	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	36300	37700	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).

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**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758010	Date Collected: 09/16/2015 11:45	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 15.8
Client ID: B31VR6		Prep Basis: "As Received"
Batch ID: 1513873	Method: ASTM D 2216 (Modified)	SOP Ref: GL-OA-E-020
Run Date: 10/09/2015 11:23	Analyst: LYTI	Instrument: SP-39020004
Data File:		Count Time:
Prep Batch: 1513873		
Prep Date: 10/09/2015 11:23		

CAS No.	Parmname	Qual	Result	Units	MDC	
	Moisture		15.8	percent +/-		
Surrogate/Tracer recovery		Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758011	Date Collected: 09/16/2015 12:24	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 12.3
Client ID: B31VV1		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514344	Method: AMCMISO_EIE_PREC_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 21:38	Analyst: HAKB	Instrument: 1246
Data File: S0382758011_AM.1A.gcnf	Aliquot: 0.106 g	Count Time: 240 min
Prep Batch: 1514344	Prep Method: DOE EML HASL-300, Am-05	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	-0.0184	pCi/g	+/-0.158	0.159	0.367	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	18.8	20.2	pCi/g	93.2	(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**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758011	Date Collected: 09/16/2015 12:24	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 12.3
Client ID: B31VV1		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514345	Method: PUIISO_PLATE_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 21:36	Analyst: HAKB	Instrument: 1227
Data File: S0382758011_PU.1A.gcnf	Aliquot: 0.106 g	Count Time: 240 min
Prep Batch: 1514345	Prep Method: DOE EML HASL-300, Pu-11-	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.201	pCi/g	+/-0.319	0.321	0.442	1.00
OER-100-70	Plutonium-239/240	U	-0.153	pCi/g	+/-0.193	0.193	0.644	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	16.0	18.6	pCi/g	85.9	(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).

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**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758011	Date Collected: 09/16/2015 12:24	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 12.3
Client ID: B31VV1		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514346	Method: UIISO_IE_PRECIP_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 11:08	Analyst: HAKB	Instrument: 1150
Data File: S0382758011_UU.1A.gcnf	Aliquot: 0.106 g	Count Time: 240 min
Prep Batch: 1514346	Prep Method: DOE EML HASL-300, U-02-R	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 <small>13968-55-3/13966-29-5</small>	Uranium-233/234		0.696	pCi/g	+/-0.479	0.493	0.405	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.00	pCi/g	+/-0.182	0.183	0.271	1.00
7440-61-1	Uranium-238	U	0.202	pCi/g	+/-0.291	0.293	0.351	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	19.2	20.0	pCi/g	95.9	(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).

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**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758011	Date Collected: 09/16/2015 12:24	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 12.3
Client ID: B31VV1		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513949	Method: SRTOT_SEP_PRECIP_GPC	SOP Ref: GL-RAD-A-004
Run Date: 10/22/2015 13:58	Analyst: KSD1	Instrument: PIC1D
Data File: S1513949r1.xls	Aliquot: 0.387 g	Count Time: 60 min
Prep Batch: 1513949	Prep Method: EPA 905.0 Modified/DOE RP5	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/21/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	-0.133	pCi/g	+/-0.752	0.752	1.43	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	8.00	8.10	mg	98.8	(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: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758011	Date Collected: 09/16/2015 12:24	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 12.3
Client ID: B31VV1		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513919	Method: GAMMA_GS	SOP Ref: GL-RAD-A-013
Run Date: 10/12/2015 11:28	Analyst: MXR1	Instrument: GAM44
Data File: G382758011.CNF;1	Aliquot: 37.646 g	Count Time: 1000 min
Prep Batch: 1513919	Prep Method: DOE HASL 300, 4.5.2.3/Ga-01	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/12/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.0143	pCi/g	+/-0.0187	0.0187	0.0301	0.100
10198-40-0	Cobalt-60	U	0.00508	pCi/g	+/-0.0199	0.020	0.0356	0.050
14683-23-9	Europium-152	U	-0.0153	pCi/g	+/-0.0458	0.0464	0.0717	0.100
15585-10-1	Europium-154	U	-0.0363	pCi/g	+/-0.0684	0.0704	0.116	0.100
14391-16-3	Europium-155	U	0.0132	pCi/g	+/-0.0507	0.0511	0.0771	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**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758011	Date Collected: 09/16/2015 12:24	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 12.3
Client ID: B31VV1		Prep Basis: "As Received"
Batch ID: 1514310	Method: DOE EML HASL-300,I-01 Mo	SOP Ref: GL-RAD-A-006
Run Date: 10/19/2015 09:28	Analyst: MJH1	Instrument: XRAY4
Data File: I382758011.CNF;1	Aliquot: 1.033 g	Count Time: 60 min
Prep Batch: 1514310	Prep Method: DOE EML HASL-300,I-01 M	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.074	pCi/g	+/-0.389	0.391	0.803	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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Rad

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758
Lab Sample ID: 382758011

Client: CPRC001
Date Collected: 09/16/2015 12:24
Date Received: 10/08/2015 08:50

Project: CPRC0F15027
Matrix: SOIL
%Moisture: 12.3

Client ID: B31VV1
Batch ID: 1513953
Run Date: 10/15/2015 23:42
Data File: C1513953.xls
Prep Batch: 1513953
Prep Date: 10/15/2015 00:00

Method: C14_LSC
Analyst: TXJ1
Aliquot: 0.509 g
Prep Method: EPA EERF C-01 Modified

Prep Basis: "As Received"
SOP Ref: GL-RAD-A-003
Instrument: LSCBLUE
Count Time: 45 min

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-0.826	pCi/g	+/-2.12	2.12	3.68	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).

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Certificate of Analysis
Sample Summary

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758011	Date Collected: 09/16/2015 12:24	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 12.3
Client ID: B31VV1	Method: TRITIUM_DIST_LSC	Prep Basis: "As Received"
Batch ID: 1513956	Analyst: GXR1	SOP Ref: GL-RAD-A-002
Run Date: 10/15/2015 19:53	Aliquot: 1.256 g	Instrument: LSCGOLD
Data File: T1513956.xls	Prep Method: EPA 906.0 Modified	Count Time: 20 min
Prep Batch: 1513956		
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-1.04	pCi/g	+/-12.2	12.2	22.1	30.0
Surrogate/Tracer recovery		Result	Nominal	Units	Recovery%	Acceptable Limits		

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758011	Date Collected: 09/16/2015 12:24	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 12.3
Client ID: B31VV1	Method: TC99_EIE_LSC	Prep Basis: "As Received"
Batch ID: 1513958	Analyst: MYM1	SOP Ref: GL-RAD-A-059
Run Date: 10/21/2015 12:21	Aliquot: 2.25 g	Instrument: LSCGOLD
Data File: E1513958R.xls	Prep Method: DOE EML HASL-300, Tc-02-	Count Time: 30 min
Prep Batch: 1513958		
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	0.177	pCi/g	+/-0.735	0.735	1.26	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	37100	37700	CPM	98.3	(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).

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**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758011	Date Collected: 09/16/2015 12:24	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 12.3
Client ID: B31VV1		Prep Basis: "As Received"
Batch ID: 1513873	Method: ASTM D 2216 (Modified)	SOP Ref: GL-OA-E-020
Run Date: 10/09/2015 11:23	Analyst: LYTI	Instrument: SP-39020004
Data File:		Count Time:
Prep Batch: 1513873		
Prep Date: 10/09/2015 11:23		

CAS No.	Parmname	Qual	Result	Units	MDC	
	Moisture		12.3	percent +/-		
Surrogate/Tracer recovery		Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758012	Date Collected: 09/16/2015 12:58	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 7.7
Client ID: B31VW3	Method: AMCMISO_EIE_PREC_AEA	Prep Basis: "Dry Weight Corrected"
Batch ID: 1514344	Analyst: HAKB	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 21:38	Aliquot: 0.107 g	Instrument: 1247
Data File: S0382758012_AM.1A.gcnf	Prep Method: DOE EML HASL-300, Am-05	Count Time: 240 min
Prep Batch: 1514344		Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.0981	pCi/g	+/-0.225	0.226	0.357	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	21.0	20.0	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.

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

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: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758012	Date Collected: 09/16/2015 12:58	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 7.7
Client ID: B31VW3		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514345	Method: PUIISO_PLATE_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 21:36	Analyst: HAKB	Instrument: 1228
Data File: S0382758012_PU.1A.gcnf	Aliquot: 0.107 g	Count Time: 240 min
Prep Batch: 1514345	Prep Method: DOE EML HASL-300, Pu-11-	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.024	pCi/g	+/-0.251	0.252	0.524	1.00
OER-100-70	Plutonium-239/240	U	-0.12	pCi/g	+/-0.273	0.273	0.744	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	14.7	18.4	pCi/g	79.9	(15%-125%)

Comments:

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

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

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: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758012	Date Collected: 09/16/2015 12:58	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 7.7
Client ID: B31VW3		Prep Basis: "Dry Weight Corrected"
Batch ID: 1514346	Method: UIISO_IE_PRECIP_AEA	SOP Ref: GL-RAD-A-011
Run Date: 10/17/2015 11:08	Analyst: HAKB	Instrument: 1154
Data File: S0382758012_UU.1A.gcnf	Aliquot: 0.107 g	Count Time: 240 min
Prep Batch: 1514346	Prep Method: DOE EML HASL-300, U-02-R	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 <small>13968-55-3/13966-29-5</small>	Uranium-233/234	U	0.391	pCi/g	+/-0.398	0.404	0.394	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.102	pCi/g	+/-0.286	0.286	0.305	1.00
7440-61-1	Uranium-238	U	0.207	pCi/g	+/-0.329	0.331	0.455	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	16.1	19.8	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.
 - X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- 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: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758012	Date Collected: 09/16/2015 12:58	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 7.7
Client ID: B31VW3		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513949	Method: SRTOT_SEP_PRECIP_GPC	SOP Ref: GL-RAD-A-004
Run Date: 10/22/2015 12:12	Analyst: KSD1	Instrument: PIC13A
Data File: S1513949r1.xls	Aliquot: 0.367 g	Count Time: 60 min
Prep Batch: 1513949	Prep Method: EPA 905.0 Modified/DOE RP5	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/21/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	0.551	pCi/g	+/-0.743	0.756	1.27	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.60	8.10	mg	93.8	(25%-125%)

Comments:

- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
 - X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- 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: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758012	Date Collected: 09/16/2015 12:58	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 7.7
Client ID: B31VW3		Prep Basis: "Dry Weight Corrected"
Batch ID: 1513919	Method: GAMMA_GS	SOP Ref: GL-RAD-A-013
Run Date: 10/12/2015 12:29	Analyst: MXR1	Instrument: GAM22
Data File: G382758012.CNF;1	Aliquot: 30.265 g	Count Time: 1000 min
Prep Batch: 1513919	Prep Method: DOE HASL 300, 4.5.2.3/Ga-01	Prep SOP Ref: GL-RAD-A-021
Prep Date: 10/12/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.0137	pCi/g	+/-0.0181	0.0192	0.0321	0.100
10198-40-0	Cobalt-60	U	0.0225	pCi/g	+/-0.0236	0.0257	0.0373	0.050
14683-23-9	Europium-152	UX	0.00	pCi/g	+/-0.0633	0.0755	0.0772	0.100
15585-10-1	Europium-154	U	-0.0839	pCi/g	+/-0.0608	0.072	0.098	0.100
14391-16-3	Europium-155	U	0.0248	pCi/g	+/-0.0458	0.0471	0.0787	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.
 - X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758012	Date Collected: 09/16/2015 12:58	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 7.7
Client ID: B31VW3		Prep Basis: "As Received"
Batch ID: 1514310	Method: DOE EML HASL-300,I-01 Mo	SOP Ref: GL-RAD-A-006
Run Date: 10/19/2015 09:29	Analyst: MJH1	Instrument: XRAY5
Data File: I382758012.CNF;1	Aliquot: 1.094 g	Count Time: 60 min
Prep Batch: 1514310	Prep Method: DOE EML HASL-300,I-01 M	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I5046-84-1	Iodine-129	U	0.0623	pCi/g	+/-0.439	0.440	1.16	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.
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- TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

October 23, 2015
Rad

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758012	Date Collected: 09/16/2015 12:58	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 7.7
Client ID: B31VW3		Prep Basis: "As Received"
Batch ID: 1513953	Method: C14_LSC	SOP Ref: GL-RAD-A-003
Run Date: 10/16/2015 00:29	Analyst: TXJ1	Instrument: LSCBLUE
Data File: C1513953.xls	Aliquot: 0.502 g	Count Time: 45 min
Prep Batch: 1513953	Prep Method: EPA EERF C-01 Modified	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	0.428	pCi/g	+/-2.18	2.18	3.73	5.00

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

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

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758012	Date Collected: 09/16/2015 12:58	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 7.7
Client ID: B31VW3		Prep Basis: "As Received"
Batch ID: 1513956	Method: TRITIUM_DIST_LSC	SOP Ref: GL-RAD-A-002
Run Date: 10/15/2015 20:15	Analyst: GXR1	Instrument: LSCGOLD
Data File: T1513956.xls	Aliquot: 1.251 g	Count Time: 20 min
Prep Batch: 1513956	Prep Method: EPA 906.0 Modified	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	2.59	pCi/g	+/-12.4	12.4	22.0	30.0

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

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

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Rad
Certificate of Analysis
Sample Summary

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758012	Date Collected: 09/16/2015 12:58	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 7.7
Client ID: B31VW3		Prep Basis: "As Received"
Batch ID: 1513958	Method: TC99_EIE_LSC	SOP Ref: GL-RAD-A-059
Run Date: 10/21/2015 12:53	Analyst: MYM1	Instrument: LSCGOLD
Data File: E1513958R.xls	Aliquot: 2.492 g	Count Time: 30 min
Prep Batch: 1513958	Prep Method: DOE EML HASL-300, Tc-02-	
Prep Date: 10/15/2015 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	0.525	pCi/g	+/-0.679	0.682	1.15	1.5

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	37000	37700	CPM	98.1	(15%-125%)

Comments:

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

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

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

October 23, 2015

**Certificate of Analysis
Sample Summary**

SDG Number: GEL382758	Client: CPRC001	Project: CPRC0F15027
Lab Sample ID: 382758012	Date Collected: 09/16/2015 12:58	Matrix: SOIL
	Date Received: 10/08/2015 08:50	%Moisture: 7.7
Client ID: B31VW3		Prep Basis: "As Received"
Batch ID: 1513873	Method: ASTM D 2216 (Modified)	SOP Ref: GL-OA-E-020
Run Date: 10/09/2015 11:23	Analyst: LYTI	Instrument: SP-39020004
Data File:		Count Time:
Prep Batch: 1513873		
Prep Date: 10/09/2015 11:23		

CAS No.	Parmname	Qual	Result	Units	MDC	
	Moisture		7.73	percent +/-		
Surrogate/Tracer recovery		Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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Quality Control Data

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QC Summary

Report Date: October 23, 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: 382758

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
High Rad Testing									
Batch	1513742								
QC1203408668	382758003	DUP							
Moisture		2.53		2.55	percent			BSW1	10/09/1510:58
						RPD:	1 (0%-20%)		
Batch	1513779								
QC1203408723	MB								
Cesium-137			U	0.443	pCi/g			BSW1	10/13/1514:38
				Uncert: +/-2.61					
				TPU: +/-2.62					
Cobalt-60			U	-0.774	pCi/g				
				Uncert: +/-1.73					
				TPU: +/-1.77					
Europium-152			U	-2.22	pCi/g				
				Uncert: +/-3.87					
				TPU: +/-4.00					
Europium-154			U	0.928	pCi/g				
				Uncert: +/-4.05					
				TPU: +/-4.07					
Europium-155			U	0.643	pCi/g				
				Uncert: +/-2.93					
				TPU: +/-2.95					
QC1203408724	382758003	DUP							
Cesium-137		2.96	U	0.817	pCi/g				10/13/1506:12
				Uncert: +/-2.28		RPD: 39	(0% - 100%)		
				TPU: +/-2.29		RER: 1.36	(0-2)		
Cobalt-60		U -0.663	U	0.152	pCi/g				
				Uncert: +/-1.57		RPD: 0	N/A		
				TPU: +/-1.60		RER: 0.718	(0-2)		
Europium-152		U 3.14	U	-2.78	pCi/g				
				Uncert: +/-3.42		RPD: 0	N/A		
				TPU: +/-3.71		RER: 2.26	(0-2)		
Europium-154		U -0.675	U	-1.8	pCi/g				
				Uncert: +/-2.54		RPD: 0	N/A		
				TPU: +/-2.55		RER: 0.553	(0-2)		
Europium-155		U 2.57	U	-5.1	pCi/g				
				Uncert: +/-5.84		RPD: 0	N/A		
				TPU: +/-5.96		RER: 1.75	(0-2)		
QC1203408725	LCS								
Americium-241		1730		1620	pCi/g	REC: 94	(80%-120%)		10/14/1506:18
				Uncert: +/-44.4					
				TPU: +/-168					
Cesium-137		646		628	pCi/g	REC: 97	(80%-120%)		
				Uncert: +/-23.2					
				TPU: +/-57.6					
Cobalt-60		644		628	pCi/g	REC: 98	(80%-120%)		

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QC Summary

Workorder: 382758

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Parname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
High Rad Testing									
Batch	1513779								
		Uncert:		+/-28.3					
		TPU:		+/-59.9					
Europium-152			U	-1.29	pCi/g				
		Uncert:		+/-14.2					
		TPU:		+/-14.3					
Europium-154			U	-1.38	pCi/g				
		Uncert:		+/-11.0					
		TPU:		+/-11.0					
Europium-155			U	8.82	pCi/g				
		Uncert:		+/-12.3					
		TPU:		+/-12.9					
Batch	1513926								
QC1203409060	MB								
Carbon-14			U	-0.0116	pCi/g			JXC5	10/14/1519:29
		Uncert:		+/-1.68					
		TPU:		+/-1.68					
QC1203409061	382758003	DUP							
Carbon-14		U	-0.626	U	-1.81	pCi/g			10/14/1520:16
		Uncert:	+/-1.67		+/-1.70		RPD: 0	N/A	
		TPU:	+/-1.67		+/-1.70		RER: 0.977	(0-2)	
QC1203409062	382758003	MS							
Carbon-14		123 U	-0.626		126	pCi/g	REC: 103	(75%-125%)	10/14/1521:04
		Uncert:	+/-1.67		+/-4.08				
		TPU:	+/-1.67		+/-10.2				
QC1203409063	LCS								
Carbon-14		104			112	pCi/g	REC: 107	(80%-120%)	10/14/1521:51
		Uncert:			+/-3.51				
		TPU:			+/-8.93				
Batch	1513929								
QC1203409064	MB								
Plutonium-238			U	-0.079	pCi/g			JXC5	10/19/1515:03
		Uncert:		+/-0.346					
		TPU:		+/-0.346					
Plutonium-239/240			U	0.553	pCi/g				
		Uncert:		+/-0.558					
		TPU:		+/-0.560					
**Plutonium-242 Tracer		67.0			49.2	pCi/g	REC: 73	(15%-125%)	
		Uncert:			+/-4.53				
		TPU:			+/-7.38				
QC1203409065	382758003	DUP							
Plutonium-238		U	-0.0899	U	0.787	pCi/g			10/20/1513:20
		Uncert:	+/-0.466		+/-1.01		RPD: 0	N/A	
		TPU:	+/-0.466		+/-1.01		RER: 1.55	(0-2)	
Plutonium-239/240		U	0.180	U	0.392	pCi/g			
		Uncert:	+/-0.431		+/-0.844		RPD: 0	N/A	
		TPU:	+/-0.432		+/-0.845		RER: 0.44	(0-2)	
**Plutonium-242 Tracer		84.8	71.5		62.5	pCi/g	REC: 74	(15%-125%)	
		Uncert:	+/-5.42		+/-8.04				
		TPU:	+/-8.97		+/-12.3				
QC1203409066	LCS								

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QC Summary

Workorder: 382758

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Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
High Rad Testing									
Batch	1513929								
Plutonium-238				22.1	pCi/g				
				Uncert: +/-5.03					
				TPU: +/-5.92					
Plutonium-239/240	66.6			70.6	pCi/g	REC: 106	(80%-120%)		
				Uncert: +/-8.95					
				TPU: +/-13.4					
**Plutonium-242 Tracer	67.0			55.5	pCi/g	REC: 83	(15%-125%)		
				Uncert: +/-8.74					
				TPU: +/-12.9					
Batch	1513934								
QC1203409076	MB								
Uranium-233/234			U	0.141	pCi/g			JXC5	10/22/1509:13
				Uncert: +/-0.722					
				TPU: +/-0.722					
Uranium-235/236			U	0.288	pCi/g				
				Uncert: +/-0.741					
				TPU: +/-0.742					
Uranium-238			U	0.908	pCi/g				
				Uncert: +/-0.893					
				TPU: +/-0.903					
**Uranium-232 Tracer	73.3			65.6	pCi/g	REC: 90	(15%-125%)		
				Uncert: +/-6.98					
				TPU: +/-12.8					
QC1203409077	382758003	DUP							
Uranium-233/234			1.55 U	0.699	pCi/g				10/21/1511:10
				Uncert: +/-0.799		RPD: 39	(0% - 100%)		
				TPU: +/-0.821		RER: 1.54	(0-2)		
Uranium-235/236		U	0.478 U	0.192	pCi/g				
				Uncert: +/-0.541		RPD: 0	N/A		
				TPU: +/-0.544		RER: 0.786	(0-2)		
Uranium-238				1.74	pCi/g				
				Uncert: +/-0.726		RPD: 77	(0% - 100%)		
				TPU: +/-0.756		RER: 1.99	(0-2)		
**Uranium-232 Tracer	92.8		85.0	90.0	pCi/g	REC: 97	(15%-125%)		
				Uncert: +/-4.89					
				TPU: +/-12.4					
QC1203409078	LCS								
Uranium-233/234				80.5	pCi/g				10/14/1521:43
				Uncert: +/-8.93					
				TPU: +/-15.7					
Uranium-235/236				5.32	pCi/g				
				Uncert: +/-2.65					
				TPU: +/-2.78					
Uranium-238	91.9			94.4	pCi/g	REC: 103	(80%-120%)		
				Uncert: +/-9.66					
				TPU: +/-18.0					
**Uranium-232 Tracer	73.3			69.9	pCi/g	REC: 95	(15%-125%)		
				Uncert: +/-8.52					
				TPU: +/-14.5					
Batch	1513937								

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QC Summary

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Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
High Rad Testing									
Batch	1513937								
QC1203409082	MB								
Total Strontium			U	2.38	pCi/g			JXC5	10/13/1512:40
				Uncert: +/-2.44					
				TPU: +/-2.52					
**Strontium Carrier	8.10			7.80	mg	REC: 96	(25%-125%)		
QC1203409083	382758003	DUP							
Total Strontium		4820		4780	pCi/g				10/13/1512:40
				Uncert: +/-53.6		RPD: 1	(0% - 20%)		
				TPU: +/-1250		RER: 0.0375	(0-2)		
**Strontium Carrier	8.10	7.70		7.80	mg	REC: 96	(25%-125%)		
QC1203409084	LCS								
Total Strontium	734			682	pCi/g	REC: 93	(80%-120%)		10/13/1512:40
				Uncert: +/-18.1					
				TPU: +/-177					
**Strontium Carrier	8.10			8.00	mg	REC: 99	(25%-125%)		
Batch	1513940								
QC1203409091	MB								
Iodine-129			U	0.0495	pCi/g			BSW1	10/13/1511:46
				Uncert: +/-0.253					
				TPU: +/-0.254					
QC1203409092	382758003	DUP							
Iodine-129	U	-0.009	U	0.0627	pCi/g				10/13/1511:47
				Uncert: +/-0.427		RPD: 0	N/A		
				TPU: +/-0.427		RER: 0.135	(0-2)		
QC1203409093	382758003	MS							
Iodine-129	25.8	U	-0.009	24.5	pCi/g	REC: 95	(75%-125%)		10/13/1513:52
				Uncert: +/-0.427					
				TPU: +/-0.427					
QC1203409094	LCS								
Iodine-129	25.8			23.5	pCi/g	REC: 91	(80%-120%)		10/13/1513:53
				Uncert: +/-2.51					
				TPU: +/-3.43					
Batch	1513944								
QC1203409107	MB								
Technetium-99			U	0.207	pCi/g			JXC5	10/20/1510:49
				Uncert: +/-0.508					
				TPU: +/-0.508					
**Technetium-99m Tracer	5.23E+05			4.04E+05	CPM	REC: 77	(15%-125%)		
QC1203409108	382758003	DUP							
Technetium-99		1.21	U	0.902	pCi/g				10/20/1512:23
				Uncert: +/-0.576		RPD: 29	(0% - 100%)		
				TPU: +/-0.592		RER: 0.601	(0-2)		
**Technetium-99m Tracer	5.23E+05	3.69E+05		3.48E+05	CPM	REC: 67	(15%-125%)		
QC1203409109	LCS								
Technetium-99	31.6			31.7	pCi/g	REC: 101	(80%-120%)		10/20/1513:57
				Uncert: +/-0.959					
				TPU: +/-3.75					
**Technetium-99m Tracer	5.23E+05			3.96E+05	CPM	REC: 76	(15%-125%)		
Batch	1513946								
QC1203409110	MB								

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QC Summary

Workorder: 382758

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Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
High Rad Testing									
Batch	1513946								
Tritium			U	-6.75	pCi/g			BSW1	10/14/1511:00
				Uncert: +/-7.93					
				TPU: +/-7.93					
QC1203409111	382758003	DUP							
Tritium		U 1.49	U	-6.58	pCi/g				10/14/1511:37
				Uncert: +/-11.5		RPD: 0	N/A		
				TPU: +/-11.5		RER: 1.06	(0-2)		
QC1203409112	382758003	MS							
Tritium		152 U 1.49		129	pCi/g	REC: 85	(75%-125%)		10/15/1508:17
				Uncert: +/-11.5					
				TPU: +/-11.5					
QC1203409113	LCS								
Tritium		151		170	pCi/g	REC: 113	(80%-120%)		10/15/1508:34
				Uncert: +/-27.3					
				TPU: +/-47.4					
Batch	1513947								
QC1203409118	MB								
Americium-241			U	0.503	pCi/g			BSW1	10/14/1521:45
				Uncert: +/-0.800					
				TPU: +/-0.802					
**Americium-243 Tracer		72.4		72.8	pCi/g	REC: 101	(15%-125%)		
				Uncert: +/-7.41					
				TPU: +/-11.2					
QC1203409119	382758003	DUP							
Americium-241		U 0.179	U	0.205	pCi/g				10/19/1515:03
				Uncert: +/-0.530		RPD: 0	N/A		
				TPU: +/-0.530		RER: 0.0648	(0-2)		
**Americium-243 Tracer		91.6		90.0	pCi/g	REC: 95	(15%-125%)		
				Uncert: +/-6.32					
				TPU: +/-10.3					
QC1203409120	LCS								
Americium-241		66.7		54.1	pCi/g	REC: 81	(80%-120%)		10/14/1521:45
				Uncert: +/-6.05					
				TPU: +/-8.51					
**Americium-243 Tracer		72.4		81.7	pCi/g	REC: 113	(15%-125%)		
				Uncert: +/-6.95					
				TPU: +/-10.6					
Rad Alpha Spec									
Batch	1514344								
QC1203410122	MB								
Americium-241			U	0.0677	pCi/g			HAKB	10/17/1521:38
				Uncert: +/-0.190					
				TPU: +/-0.191					
**Americium-243 Tracer		18.6		17.5	pCi/g	REC: 94	(15%-125%)		
				Uncert: +/-2.19					
				TPU: +/-3.27					
QC1203410123	382758001	DUP							
Americium-241		U 0.0529	U	0.179	pCi/g				10/17/1521:38
				Uncert: +/-0.198		RPD: 0	N/A		
				TPU: +/-0.198		RER: 0.71	(0-2)		

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QC Summary

Workorder: 382758

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Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Alpha Spec									
Batch	1514344								
**Americium-243 Tracer	20.2	18.9		19.6	pCi/g	REC: 97	(15%-125%)		
	Uncert:	+/-2.27		+/-2.34					
	TPU:	+/-3.39		+/-3.50					
QC1203410124 LCS									
Americium-241	17.2			13.8	pCi/g	REC: 80	(80%-120%)		10/17/1521:38
	Uncert:			+/-1.78					
	TPU:			+/-2.47					
**Americium-243 Tracer	18.6			19.5	pCi/g	REC: 105	(15%-125%)		
	Uncert:			+/-2.06					
	TPU:			+/-3.10					
Batch	1514345								
QC1203410125 MB									
Plutonium-238			U	-0.0338	pCi/g			HAKB	10/17/1521:36
	Uncert:			+/-0.149					
	TPU:			+/-0.150					
Plutonium-239/240			U	-0.0957	pCi/g				
	Uncert:			+/-0.271					
	TPU:			+/-0.271					
**Plutonium-242 Tracer	17.1			16.0	pCi/g	REC: 93	(15%-125%)		
	Uncert:			+/-2.16					
	TPU:			+/-3.21					
QC1203410126 382758001 DUP									
Plutonium-238		U	-0.0189	U	0.00	pCi/g			10/17/1521:37
	Uncert:		+/-0.163		+/-0.180	RPD: 0	N/A		
	TPU:		+/-0.163		+/-0.180	RER: 0.152	(0-2)		
Plutonium-239/240		U	0.00629	U	0.135	pCi/g			
	Uncert:		+/-0.289		+/-0.311	RPD: 0	N/A		
	TPU:		+/-0.289		+/-0.312	RER: 0.595	(0-2)		
**Plutonium-242 Tracer	18.6	14.6		14.5	pCi/g	REC: 78	(15%-125%)		
	Uncert:	+/-2.33		+/-2.54					
	TPU:	+/-3.44		+/-3.74					
QC1203410127 LCS									
Plutonium-238			U	0.0218	pCi/g				10/17/1521:37
	Uncert:			+/-0.228					
	TPU:			+/-0.228					
Plutonium-239/240	17.1			16.7	pCi/g	REC: 97	(80%-120%)		
	Uncert:			+/-2.25					
	TPU:			+/-3.30					
**Plutonium-242 Tracer	17.1			14.2	pCi/g	REC: 83	(15%-125%)		
	Uncert:			+/-2.27					
	TPU:			+/-3.36					
Batch	1514346								
QC1203410128 MB									
Uranium-233/234			U	0.0658	pCi/g			HAKB	10/21/1515:30
	Uncert:			+/-0.289					
	TPU:			+/-0.290					
Uranium-235/236			U	0.0813	pCi/g				
	Uncert:			+/-0.357					
	TPU:			+/-0.358					
Uranium-238			U	-0.0494	pCi/g				

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Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Alpha Spec									
Batch	1514346								
				Uncert:					
				TPU:					
*Uranium-232 Tracer	18.4			17.4	pCi/g	REC: 95	(15%-125%)		
				Uncert:					
				TPU:					
QC1203410129	382758001	DUP							
Uranium-233/234		0.606		1.01	pCi/g				10/17/1511:09
				Uncert:		RPD: 50	(0% - 100%)		
				TPU:		RER: 1.08	(0-2)		
Uranium-235/236		U 0.264	U	0.356	pCi/g				
				Uncert:		RPD: 30	(0% - 100%)		
				TPU:		RER: 0.342	(0-2)		
Uranium-238		0.552		0.487	pCi/g				
				Uncert:		RPD: 13	(0% - 100%)		
				TPU:		RER: 0.214	(0-2)		
*Uranium-232 Tracer	20.0	18.2		19.0	pCi/g	REC: 95	(15%-125%)		
				Uncert:					
				TPU:					
QC1203410130	LCS								
Uranium-233/234				25.1	pCi/g				10/17/1511:09
				Uncert:					
				TPU:					
Uranium-235/236				1.44	pCi/g				
				Uncert:					
				TPU:					
Uranium-238	23.4			24.2	pCi/g	REC: 103	(80%-120%)		
				Uncert:					
				TPU:					
*Uranium-232 Tracer	18.4			17.0	pCi/g	REC: 92	(15%-125%)		
				Uncert:					
				TPU:					
Rad Gamma Spec									
Batch	1513919								
QC1203409030	MB								
Cesium-137			U	0.00885	pCi/g			MXR1	10/12/1512:30
				Uncert:					
				TPU:					
Cobalt-60			U	0.00832	pCi/g				
				Uncert:					
				TPU:					
Europium-152			U	0.0635	pCi/g				
				Uncert:					
				TPU:					
Europium-154			U	0.0212	pCi/g				
				Uncert:					
				TPU:					
Europium-155			U	0.0245	pCi/g				
				Uncert:					
				TPU:					
QC1203409031	382758001	DUP							

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Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gamma Spec									
Batch	1513919								
Cesium-137		U	0.0059	U	0.0124	pCi/g			
	Uncert:		+/-0.0168		+/-0.0199		RPD: 0	N/A	
	TPU:		+/-0.017		+/-0.0207		RER: 0.475	(0-2)	
Cobalt-60		U	0.00682	U	-0.00698	pCi/g			
	Uncert:		+/-0.0185		+/-0.0188		RPD: 0	N/A	
	TPU:		+/-0.0188		+/-0.0191		RER: 1.01	(0-2)	
Europium-152		U	-0.0482	U	0.0363	pCi/g			
	Uncert:		+/-0.0485		+/-0.0486		RPD: 0	N/A	
	TPU:		+/-0.0533		+/-0.0514		RER: 2.24	(0-2)	
Europium-154		U	-0.0202	U	0.000643	pCi/g			
	Uncert:		+/-0.0576		+/-0.0556		RPD: 0	N/A	
	TPU:		+/-0.0584		+/-0.0556		RER: 0.507	(0-2)	
Europium-155		U	0.0127	U	-0.000786	pCi/g			
	Uncert:		+/-0.0477		+/-0.0384		RPD: 0	N/A	
	TPU:		+/-0.0481		+/-0.0384		RER: 0.43	(0-2)	
QC1203409032	LCS								
Americium-241	693				683	pCi/g	REC: 99	(80%-120%)	10/13/1505:33
	Uncert:				+/-9.71				
	TPU:				+/-52.3				
Cesium-137	231				223	pCi/g	REC: 97	(80%-120%)	
	Uncert:				+/-4.34				
	TPU:				+/-22.8				
Cobalt-60	160				150	pCi/g	REC: 94	(80%-120%)	
	Uncert:				+/-4.47				
	TPU:				+/-15.3				
Europium-152				U	0.939	pCi/g			
	Uncert:				+/-1.87				
	TPU:				+/-1.92				
Europium-154				U	0.490	pCi/g			
	Uncert:				+/-1.42				
	TPU:				+/-1.44				
Europium-155				U	-1.56	pCi/g			
	Uncert:				+/-1.53				
	TPU:				+/-1.69				
Batch	1514310								
QC1203410039	MB								
Iodine-129				U	-0.446	pCi/g			MJH1 10/19/1510:54
	Uncert:				+/-0.792				
	TPU:				+/-0.818				
QC1203410040	382758001	DUP							
Iodine-129		U	0.0174	U	0.876	pCi/g			10/19/1510:54
	Uncert:		+/-1.30		+/-0.721		RPD: 0	N/A	
	TPU:		+/-1.30		+/-0.827		RER: 1.09	(0-2)	
QC1203410041	382758001	MS							
Iodine-129	40.6	U	0.0174		38.4	pCi/g	REC: 95	(75%-125%)	10/19/1510:55
	Uncert:		+/-1.30		+/-3.88				
	TPU:		+/-1.30		+/-5.46				
QC1203410042	LCS								
Iodine-129	38.0				39.8	pCi/g	REC: 105	(80%-120%)	10/19/1510:55
	Uncert:				+/-5.17				

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Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gamma Spec									
Batch	1514310								
		TPU:		+/-6.53					
Rad Gas Flow									
Batch	1513949								
QC1203409121	MB								
Total Strontium			U	-0.401	pCi/g			KSD1	10/22/1512:11
		Uncert:		+/-0.647					
		TPU:		+/-0.647					
*Strontium Carrier		8.10		7.80	mg	REC: 96	(25%-125%)		
QC1203409122	382758001	DUP							
Total Strontium		U	0.122	U	-0.441	pCi/g			10/22/1512:11
		Uncert:	+/-0.750		+/-0.508	RPD: 0	N/A		
		TPU:	+/-0.751		+/-0.508	RER: 1.22	(0-2)		
*Strontium Carrier		8.10		7.30	mg	REC: 94	(25%-125%)		
QC1203409123	LCS								
Total Strontium		56.0			52.3	pCi/g	REC: 93	(80%-120%)	10/22/1512:11
		Uncert:			+/-3.22				
		TPU:			+/-13.8				
*Strontium Carrier		8.10			8.10	mg	REC: 100	(25%-125%)	
Rad Liquid Scintillation									
Batch	1513953								
QC1203409126	MB								
Carbon-14			U	-0.63	pCi/g			TXJ1	10/16/1501:16
		Uncert:		+/-2.12					
		TPU:		+/-2.12					
QC1203409127	382758001	DUP							
Carbon-14		U	-2.44	U	-1.63	pCi/g			10/16/1502:03
		Uncert:	+/-2.11		+/-2.14	RPD: 0	N/A		
		TPU:	+/-2.11		+/-2.14	RER: 0.527	(0-2)		
QC1203409128	382758001	MS							
Carbon-14		150	U	-2.44	145	pCi/g	REC: 97	(75%-125%)	10/16/1502:50
		Uncert:	+/-2.11		+/-4.56				
		TPU:	+/-2.11		+/-11.7				
QC1203409129	LCS								
Carbon-14		149			145	pCi/g	REC: 98	(80%-120%)	10/16/1503:37
		Uncert:			+/-4.54				
		TPU:			+/-11.6				
Batch	1513956								
QC1203409134	MB								
Tritium			U	6.22	pCi/g			GXR1	10/15/1520:36
		Uncert:		+/-12.7					
		TPU:		+/-12.8					
QC1203409135	382758001	DUP							
Tritium		U	7.90	U	3.58	pCi/g			10/15/1520:58
		Uncert:	+/-13.0		+/-12.3	RPD: 0	N/A		
		TPU:	+/-13.1		+/-12.3	RER: 0.47	(0-2)		
QC1203409137	382758001	MS							
Tritium		72.1	U	7.90	64.6	pCi/g	REC: 90	(75%-125%)	10/15/1521:19
		Uncert:	+/-13.0		+/-16.9				
		TPU:	+/-13.1		+/-22.4				

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Parname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Liquid Scintillation									
Batch	1513956								
QC1203409139	LCS								
Tritium	71.4			65.1	pCi/g	REC: 91 (80%-120%)			10/16/1509:22
	Uncert:			+/-19.8					
	TPU:			+/-24.7					
Batch	1513958								
QC1203409140	MB								
Technetium-99			U	0.214	pCi/g			MYM1	10/21/1513:25
	Uncert:			+/-0.598					
	TPU:			+/-0.598					
**Technetium-99m Tracer	37700			36900	CPM	REC: 98 (15%-125%)			
QC1203409141	382758001	DUP							
Technetium-99		U	-0.178	U	0.074	pCi/g			10/21/1513:58
	Uncert:		+/-0.709		+/-0.764		RPD: 0	N/A	
	TPU:		+/-0.709		+/-0.764		RER: 0.474	(0-2)	
**Technetium-99m Tracer	37700		36700		36200	CPM	REC: 96 (15%-125%)		
QC1203409142	LCS								
Technetium-99	30.7			28.8	pCi/g	REC: 94 (80%-120%)			10/21/1514:31
	Uncert:			+/-1.22					
	TPU:			+/-3.52					
**Technetium-99m Tracer	37700			35800	CPM	REC: 95 (15%-125%)			

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.
- 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

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

** Indicates analyte is a surrogate compound.

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

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

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