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a member of The GEL Group INC

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April 11, 2018

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

Re: CHPRC SAF F17-062
Work Order: 445991
SDG: GEL445991

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on March 15, 2018. This revised data report has been prepared and reviewed in accordance with GEL's standard operating procedures. Per PD18-0163, this package was revised to correct the data reported for the IC matrix spike.

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

Sincerely,

Heather Shaffer

Heather Shaffer
Project Manager

Purchase Order: 303971 - 8H
Chain of Custody: F17-062-612, F17-062-615, F17-062-620, F17-062-623, F17-062-625, F17-062-628, F17-062-631, F17-062-640, F17-062-648, F17-062-651, F17-062-654, F17-062-657, F17-062-666 and F17-062-669
Enclosures

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Problem and Discrepancy Report

PROBLEM AND DISCREPANCY (P&D) REPORT

P&D Number: PD18-0163
Rev. Number: 0
Laboratory: GEL
SDG Number: GEL445991
Date Initiated: 04/11/2018

SAMPLE EVENT INFORMATION

SAF NUM(S): F17-062

SAMPLING INFORMATION

NUMBER OF SAMPLES: 14

SAMPLE MATRIX: SOIL

ISSUE BACKGROUND

CLASS: Data Issues

TYPE: Missing QC data

DESCRIPTION: Percent recoveries are not reported for IC matrix spike 1203993861 in batch 1748992, and the nominal concentrations are missing.

RESOLUTION

PROPOSED RESOLUTION: Please correct the issue and resubmit hard copy and electronic copy revised data packages.

FINAL RESOLUTION:

SUBMITTED BY:

SHAFFER, H 04/10/2018

Sample Issue Resolution

SAMPLE ISSUE RESOLUTION (SIR) REPORT

SIR Number: SIR18-0550
Rev. Number: 0
Date Initiated: 03/13/2018

SAMPLE EVENT INFORMATION

SAF NUM(S): F17-062

LABORATORY: GEL

SAMPLING INFORMATION

NUMBER OF SAMPLES: 4

SAMPLE NUMBERS: B3H265, B3H268, B3H294, B3H2D0

SAMPLE MATRIX: SOIL

SDG NUM(S):

ISSUE BACKGROUND

CLASS: General Laboratory Direction

TYPE: Addition of Analyses

DESCRIPTION: Routine sample volume was not available for the sample listed above. CHPRC will send all available sample in the Gamma sample bottle. In addition to the gamma request, CHPRC is requesting the following analysis be run from that sample bottle:
9056_ANIONS_IC: COMMON (Sulfate, chloride, fluoride, nitrogen in nitrate, nitrogen in nitrite and phosphorus in phosphate)
7196_CR6: COMMON
AMCMISO_IE_PRECIP_AEA: COMMON
C14_LSC: COMMON
I129_SEP_LEPS_GS: COMMON
NI63_LSC: COMMON
NP237_IE_PRECIP_AEA: COMMON
PUISO_IE_PRECIP_AEA: COMMON (238 and 239/240)
SRTOT_SEP_PRECIP_GPC: COMMON
TC99_EIE_LSC: COMMON
TRITIUM_DIST_LSC: COMMON
UISO_IE_PRECIP_AEA: COMMON (U-235, U-233/234, U238)
350.1_AMMONIA: COMMON
7471_MERCURY_CV: COMMON (SOLIDS)
9012_CYANIDE (TOTAL): COMMON
6020_METALS_ICPMS: COMMON (Al, Pb, Ba, Cd, Cr, Cu, Se)
6020_METALS_ICPMS: COMMON (Add-on) (Mn, Ni, Ag, Sb, As, U)

RESOLUTION

PROPOSED RESOLUTION: Perform analysis as requested above. It is acceptable to run Gamma first and use the sample volume post Gamma analysis to supplement volume. If due dates need to be adjusted to run the sample in series, that can be negotiated.

FINAL RESOLUTION: Accept proposed resolution

SUBMITTED BY:

FITZGERALD, SL 03/13/2018

ACCEPTED BY:

SHAFFER, H 03/13/2018

SAMPLE ISSUE RESOLUTION (SIR) REPORT

SIR Number: SIR18-0564
Rev. Number: 0
Date Initiated: 03/20/2018

SAMPLE EVENT INFORMATION

SAF NUM(S): F17-062

LABORATORY: GEL

SAMPLING INFORMATION

NUMBER OF SAMPLES: 1

SAMPLE NUMBERS: B3H265

SAMPLE MATRIX: SOIL

SDG NUM(S): GEL445991

ISSUE BACKGROUND

CLASS: Chain of Custody Issue (Field)

TYPE: No/Illegible Sample Collector Listed on COC

DESCRIPTION: There is no collection time listed on the chain of custody for sample ID B3H265. The collection time on the sample container is 07:44.

RESOLUTION

PROPOSED RESOLUTION: Please confirm the collection time.

FINAL RESOLUTION: Laboratory should use the sample collection time as listed on the sample container: 07:44.

SUBMITTED BY:

SHAFFER, H 03/19/2018

ACCEPTED BY:

NAGEL, SE 03/20/2018

Case Narrative

Per PD18-0163, this package was revised to correct the data reported for the IC matrix spike.

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF F17-062
SDG: GEL445991

April 11, 2018

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 March 15, 2018, 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 was no time of collection listed on the chain of custody for sample ID B3H265. Please see the enclosed SIR for further details..

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

Sample Identification
The laboratory received the following samples:

Laboratory Identification	Sample Description
445991001	B3H265
445991002	B3H268
445991003	B3H273
445991004	B3H276
445991005	B3H279
445991006	B3H282
445991007	B3H285
445991008	B3H294
445991009	B3H2B2
445991010	B3H2B5
445991011	B3H2B8
445991012	B3H2C1
445991013	B3H2D0
445991014	B3H2D3

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

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

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

Heather Shaffer

Heather Shaffer
Project Manager

Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL445991
Work Order #: 445991

General Chemistry

Ion Chromatography

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

Technical Information

Sample Re-analysis
Samples445991007 (B3H285), 445991008 (B3H294), 445991009 (B3H2B2) and 445991010 (B3H2B5) were re-analyzed due to CCV failure. The reanalysis data with passing instrument QC was reported.
Samples1203993739 (MB), 1203993740 (LCS), 1203993751 (B3H273DUP), 1203993862 (B3H273MS), 445991001 (B3H265), 445991002 (B3H268), 445991003 (B3H273), 445991004 (B3H276), 445991005 (B3H279), 445991006 (B3H282), 445991007 (B3H285), 445991008 (B3H294), 445991009 (B3H2B2) and 445991010 (B3H2B5) were re-analyzed due to CCB failure. The reanalysis data with passing instrument QC was reported.

Miscellaneous Information

Manual Integrations
Samples 1203993740 (LCS), 1203993751 (B3H273DUP), 445991002 (B3H268), 445991003 (B3H273), 445991004 (B3H276), 445991005 (B3H279), 445991006 (B3H282), 445991007 (B3H285), 445991008 (B3H294), 445991009 (B3H2B2) and 445991010 (B3H2B5) were manually integrated to correctly position the baseline as set in the calibration standards.

Ion Chromatography

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

Miscellaneous Information

Manual Integrations
Samples 1203993812 (B3H2B8DUP), 445991011 (B3H2B8), 445991013 (B3H2D0) and 445991014 (B3H2D3) were manually integrated to correctly position the baseline as set in the calibration standards.

Hexavalent Chromium

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

Radiochemistry

NP237_IE_PRECIP_AEA: COMMON

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

Technical Information

Recounts
Samples 445991004 (B3H276), 445991009 (B3H2B2) and 445991013 (B3H2D0) were recounted on the gas flow proportional counter due to high tracer yields. The recounts are reported.

PUISO_PRECIP_AEA:COMMON

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

Technical Information

Recounts
Samples 1203990635 (LCS), 445991002 (B3H268), 445991004 (B3H276), 445991007 (B3H285) and 445991014 (B3H2D3) were recounted due to a peak shift. The recounts are reported.

Miscellaneous Information

Additional Comments
Samples 1203990633 (MB), 445991001 (B3H265), 445991002 (B3H268), 445991003 (B3H273), 445991005 (B3H279) and 445991007 (B3H285) did not meet the resolution requirement of having a full width half maximum of 100 keV or less for the tracer; however, the tracer yield requirement was met and the tracer peaks are within the tracer region of interest. The tracer peak centroid for samples 445991010 (B3H2B5) and 445991013 (B3H2D0) are greater than 50 keV from the expected library energy value for the tracer; however, the tracer yield requirement was met and the tracer peaks are within the tracer region of interest.

UISO_IE_PRECIP_AEA:COMMON

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

Technical Information

Recounts
Sample 1203990636 (MB) was recounted due to a suspected false positive. The recount is reported.

AMCMISO_EIE_PRECIP_AEA: COMMON

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

Quality Control (QC) Information

Tracer/Carrier Yield
Samples, (See Below), did not meet the client tracer yield requirements, however it is less than 110 percent and does meet the GEL standard tracer yield requirements.

Sample	Analyte	Value
445991005 (B3H279)	Americium-243 Tracer	107* (30%-105%)
445991009 (B3H2B2)	Americium-243 Tracer	106* (30%-105%)

Technical Information

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

Recounts
Samples 1204001201 (LCS), 445991001 (B3H265) and 445991005 (B3H279) were recounted due to high carrier/tracer yield. The recounts are reported. Sample 445991004 (B3H276) was recounted due to a suspected false positive. The recount is reported. Sample 445991009 (B3H2B2) was recounted due to high tracer yield. The original count is reported.

Dry Weight

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

GAMMA_GS:COMMON

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

Quality Control (QC) Information

RDL Met
Sample did not meet the detection limit due to limited sample volume.

Sample	Analyte	Value
445991002 (B3H268)	Europium-154	Result 0.0133 < MDA 0.207 > RDL 0.1 pCi/g

I129_SEP_LEPS_GS

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

SRTOT_SEP_PRECIP_GPC: COMMON

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

Quality Control (QC) Information

Duplication Criteria between QC Sample and Duplicate Sample
The QC Sample and the Duplicate, (See Below), did not meet the relative error ratio requirement; however, both sample and duplicate results are less than the minimum detectable concentration.

Sample	Analyte	Value
1203991147 (B3H279DUP)	Total Strontium	RPD 0 N/A RER 2.25* (0-2)

Technical Information

Recounts
Sample 1203991147 (B3H279DUP) was recounted due to a suspected false positive. The recount is reported.

TRITIUM_DIST_LSC: COMMON

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

Miscellaneous Information

Additional Comments
The matrix spike, 1203993202 (B3H273MS), aliquot was reduced to conserve sample volume.

C14_LSC: COMMON

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

Miscellaneous Information

Additional Comments
The matrix spike, 1203993221 (B3H276MS), aliquot was reduced to conserve sample volume.

TC99_SEP_GPC

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

NI63_LSC

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

Technical Information

Recounts
Sample 445991010 (B3H2B5) was recounted to verify sample results. Recount is reported.

Certification Statement

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

Chain of Custody and Supporting Documentation

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445991		F17-062-612	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: FITZGERALD, SL	TELEPHONE NO.: 373-7495	PROJECT COORDINATOR: FITZGERALD, SL	REQUIRED TAT: 30 Days
SAMPLING LOCATION: ~~C9864~~ Optional 1 C9943	PROJECT DESIGNATION: 200-DV-1 Operable Unit Characterization - Shallow Sampling - Soil 2017		SAF NO.: F17-062	ORIGINAL
ICE CHEST NO.: GWS-743	FIELD LOGBOOK NO.: HNF-N-645-12/17	ACTUAL SAMPLE DEPTH: 10.1 to 12.3 FT	PURCHASE ORDER/CHARGE CODE: 303971	METHOD OF SHIPMENT: FEDERAL EXPRESS
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9163		BILL OF LADING/AIR BILL NO.: 780D 5304 2496	

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: B3H264~~
Ed Kauer CHPRC MAR 13 2018

PRESERVATION	Cool <=6C	Cool <=6C	None
HOLDING TIME	30 Days	28 Days/48 Hours	6 Months
TYPE OF CONTAINER	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1
VOLUME	60mL	60mL	500mL
SAMPLE ANALYSIS	7196_CR6: COMMON;	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

Ed Kauer CHPRC MAR 13 2018 (NIF)

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B3H265	N/A	SOIL	MAR 13 2018		✓	✓	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC T. Callaway	MAR 13 2018 1430	SSU-1	MAR 13 2018 1430
SSU-1	MAR 14 2018 0650	Troy Bacon CHPRC Troy L. Bacon	MAR 14 2018 0650
Troy Bacon CHPRC Troy L. Bacon	MAR 14 2018 1400	FEDEX	
Fed Ex		Chakeris Tarplin GEL Laboratories	3/15/18 915

SPECIAL INSTRUCTIONS
TRVL-18-027
(1) 9056_ANIONS_IC: COMMON; 9056_ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};
(2) GAMMA_GS: COMMON; AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON; UISO_IE_PRECIP_AEA: COMMON; C14_LSC: COMMON; I129_SEP_LEPS_GS: COMMON; NI63_LSC: COMMON; NP237_IE_PRECIP_AEA: COMMON; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium}; TC99_EIE_LSC: COMMON; TRITIUM_DIST_LSC: COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 11/30/2017 FSR ID = FSR54217 TRVL NUM = TRVL-18-027 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445991		F17-062-615	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: FITZGERALD, SL	TELEPHONE NO.: 373-7495	PROJECT COORDINATOR: FITZGERALD, SL	REQUIRED TAT: 30 Days
SAMPLING LOCATION: ~~C9864~~ Optional 2 C9943	PROJECT DESIGNATION: 200-DV-1 Operable Unit Characterization - Shallow Sampling - Soil 2017		SAF NO.: F17-062	ORIGINAL
ICE CHEST NO.: GWS-743	FIELD LOGBOOK NO.: ~~HNF-N~~ 64572/17	ACTUAL SAMPLE DEPTH: 12.3 to 14.9 FT	PURCHASE ORDER/CHARGE CODE: 303971	METHOD OF SHIPMENT: FEDERAL EXPRESS
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9163		BILL OF LADING/AIR BILL NO.: 7800 5304 2496	

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: B3H267~~
MAR 13 2018 Ed Kauer CHPRC

PRESERVATION	Cool <=6C	Cool <=6C	None
HOLDING TIME	30 Days	28 Days/48 Hours	6 Months
TYPE OF CONTAINER	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1
VOLUME	60mL	60mL	500mL
SAMPLE ANALYSIS	7196_CR6: COMMON;	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

MAR 13 2018 Ed Kauer CHPRC

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B3H268	N/A	SOIL	MAR 13 2018	0800	✓	✓	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC	MAR 13 2018 1430	SSU-1	MAR 13 2018 1430
SSU-1	MAR 14 2018 0650	Troy Bacon CHPRC	MAR 14 2018 0650
Troy Bacon CHPRC	MAR 14 2018 1400		
Fed Ex		Chakeris Tarplin GEL Laboratories	3/15/18 915

SPECIAL INSTRUCTIONS
TRVL-18-027
(1) 9056_ANIONS_IC: COMMON; 9056_ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};
(2) GAMMA_GS: COMMON; AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON; UISO_IE_PRECIP_AEA: COMMON; C14_LSC: COMMON; I129_SEP_LEPS_GS: COMMON; NI63_LSC: COMMON; NP237_IE_PRECIP_AEA: COMMON; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium}; TC99_EIE_LSC: COMMON; TRITIUM_DIST_LSC: COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 11/30/2017 FSR ID = FSR54224 TRVL NUM = TRVL-18-027 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445991		F17-062-620	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: FITZGERALD, SL	TELEPHONE NO.: 373-7495	PROJECT COORDINATOR: FITZGERALD, SL	REQUIRED TAT: 30 Days
SAMPLING LOCATION: C9865, Shallow Sample 1	PROJECT DESIGNATION: 200-DV-1 Operable Unit Characterization - Shallow Sampling - Soil 2017		SAF NO.: F17-062	ORIGINAL
ICE CHEST NO.: GWS-743	FIELD LOGBOOK NO.: HNF-N-645 12-17	ACTUAL SAMPLE DEPTH: 2.0 to 4.3 FT	PURCHASE ORDER/CHARGE CODE: 303971	METHOD OF SHIPMENT: FEDERAL EXPRESS
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 91163		BILL OF LADING/AIR BILL NO.: 7800 5304 2194	

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: B3H272.~~
MAR 13 2018 Ed Kauer CHPRC

PRESERVATION	Cool <=6C	Cool <=6C	None
HOLDING TIME	30 Days	28 Days/48 Hours	6 Months
TYPE OF CONTAINER	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1
VOLUME	60mL	60mL	500mL
SAMPLE ANALYSIS	7196_CR6: COMMON;	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B3H273	N/A	SOIL	MAR 13 2018	0833	✓	✓	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC T. Callaway	MAR 13 2018 1430	SSU-1	MAR 13 2018 1430
SSU-1	MAR 14 2018 0650	Troy Bacon CHPRC Troy L Bacon	MAR 14 2018 0650
Troy Bacon CHPRC Troy L Bacon	MAR 14 2018 1400	FEDEX	~~MAR 14 2018~~ TLB 3-14-18
	TLB ~~MAR 14 2018~~ 3-14-18	~~FEDEX~~ TLB 3-14-18	
Fed Ex		Chakeris Tarplin GEL Laboratories	3/15/18 915

SPECIAL INSTRUCTIONS
TRVL-18-028
(1) 9056_ANIONS_IC: COMMON; 9056_ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};
(2) GAMMA_GS: COMMON; AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON; UISO_IE_PRECIP_AEA: COMMON; C14_LSC: COMMON; I129_SEP_LEPS_GS: COMMON; NI63_LSC: COMMON; NP237_IE_PRECIP_AEA: COMMON; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium}; TC99_EIE_LSC: COMMON; TRITIUM_DIST_LSC: COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 11/30/2017 FSR ID = FSR54226 TRVL NUM = TRVL-18-028 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445991			F17-062-623	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: FITZGERALD, SL	TELEPHONE NO.: 373-7495	PROJECT COORDINATOR: FITZGERALD, SL	REQUIRED TAT 30 Days	
SAMPLING LOCATION: C9865, Shallow Sample 2	PROJECT DESIGNATION: 200-DV-1 Operable Unit Characterization - Shallow Sampling - Soil 2017		SAF NO.: F17-062	ORIGINAL	
ICE CHEST NO.: GWS-743	FIELD LOGBOOK NO.: HNF-N-645 12-17	ACTUAL SAMPLE DEPTH: 4.3 to 6.3 FT	PURCHASE ORDER/CHARGE CODE: 303971	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 91163		BILL OF LADING/AIR BILL NO.: 7800 5304 2496		

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: B3H275~~
MAR 13 2018 Ed Kauer CHPRC

PRESERVATION	Cool <=6C	Cool <=6C	None
HOLDING TIME	30 Days	28 Days/48 Hours	6 Months
TYPE OF CONTAINER	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1
VOLUME	60mL	60mL	500mL
SAMPLE ANALYSIS	7196_CR6: COMMON;	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B3H276	N/A	SOIL	MAR 13 2018	0839	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC	MAR 13 2018 1430	SSU-1	MAR 13 2018 1430
SSU-1	MAR 14 2018 0650	Troy Bacon CHPRC	MAR 14 2018 0650
Troy Bacon CHPRC	MAR 14 2018 1400	FEDEX	
Fed Ex		Chakeris Tarplin/ GEL Laboratories	3/15/18 915

SPECIAL INSTRUCTIONS
TRVL-18-028
(1) 9056_ANIONS_IC: COMMON; 9056_ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};
(2) GAMMA_GS: COMMON; AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON; UISO_IE_PRECIP_AEA: COMMON; C14_LSC: COMMON; I129_SEP_LEPS_GS: COMMON; NI63_LSC: COMMON; NP237_IE_PRECIP_AEA: COMMON; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium}; TC99_EIE_LSC: COMMON; TRITIUM_DIST_LSC: COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 11/30/2017 FSR ID = FSR54218 TRVL NUM = TRVL-18-028 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445991		F17-062-625	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: FITZGERALD, SL	TELEPHONE NO.: 373-7495	PROJECT COORDINATOR: FITZGERALD, SL	REQUIRED TAT: 30 Days
SAMPLING LOCATION: J-12-18 C9865, Shallow Sample/ DUP	PROJECT DESIGNATION: 200-DV-1 Operable Unit Characterization - Shallow Sampling - Soil 2017		SAF NO.: F17-062	ORIGINAL
ICE CHEST NO.: GWS-743	FIELD LOGBOOK NO.: HNF-N-645 12-17	ACTUAL SAMPLE DEPTH: 20.10 4.3 FT	PURCHASE ORDER/CHARGE CODE: 303971	METHOD OF SHIPMENT: FEDERAL EXPRESS
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9163		BILL OF LADING/AIR BILL NO.: 7800 5304 2494	

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: B3H275~~
MAR 13 2018 Ed Kauer CHPRC

PRESERVATION	Cool <=6C	Cool <=6C	None	
HOLDING TIME	30 Days	28 Days/48 Hours	6 Months	
TYPE OF CONTAINER	G/P	G/P	G/P	
NO. OF CONTAINER(S)	1	1	1	
VOLUME	60mL	60mL	500mL	
SAMPLE ANALYSIS	7196_CR6: COMMON;	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B3H279	N/A	SOIL	MAR 13 2018	0833	✓	✓	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC	MAR 13 2018 1436	SSU-1	MAR 13 2018 1436
SSU-1	MAR 14 2018 0650	Troy Bacon CHPRC	MAR 14 2018 0650
Troy Bacon CHPRC	MAR 14 2018 1400	FEDEX	
Fed Ex		Chakeris Tarplin GEL Laboratories	3/15/18 915

SPECIAL INSTRUCTIONS
TRVL-18-028
(1) 9056_ANIONS_IC: COMMON; 9056_ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};
(2) GAMMA_GS: COMMON; AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON; UISO_IE_PRECIP_AEA: COMMON; C14_LSC: COMMON; I129_SEP_LEPS_GS: COMMON; NI63_LSC: COMMON; NP237_IE_PRECIP_AEA: COMMON; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium}; TC99_EIE_LSC: COMMON; TRITIUM_DIST_LSC: COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 11/30/2017 FSR ID = FSR54219 TRVL NUM = TRVL-18-028 A-6003-618 (REV 3)

4/11/2018

Revision #1 11-APR-2018 REV.1

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445991			F17-062-628	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: FITZGERALD, SL	TELEPHONE NO.: 373-7495	PROJECT COORDINATOR: FITZGERALD, SL	REQUIRED TAT: 30 Days	
SAMPLING LOCATION: C9865, Shallow Sample 3	PROJECT DESIGNATION: 200-DV-1 Operable Unit Characterization - Shallow Sampling - Soil 2017		SAF NO.: F17-062	ORIGINAL	
ICE CHEST NO.: GWS-743	FIELD LOGBOOK NO.: HNF-N-645 12-17	ACTUAL SAMPLE DEPTH: 6.3 to 9.2 FT	PURCHASE ORDER/CHARGE CODE: 303971	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 91 63		BILL OF LADING/AIR BILL NO.: 7800 5304 2944		

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: B3H281~~

MAR 13 2018 Ed Kauer CHPRC

PRESERVATION	Cool <=6C	Cool <=6C	None
HOLDING TIME	30 Days	28 Days/48 Hours	6 Months
TYPE OF CONTAINER	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1
VOLUME	60mL	60mL	500mL
SAMPLE ANALYSIS	7196_CR6: COMMON;	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B3H282	N/A	SOIL	MAR 13 2018	0846	✓	✓	✓

CHAIN OF POSSESSION: RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES: RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC T. Callaway	MAR 13 2018 1430	SSU-1	MAR 13 2018 1430
SSU-1	MAR 14 2018 0650	Troy Bacon CHPRC Troy L. Bacon	MAR 14 2018 0650
Troy Bacon CHPRC Troy L. Bacon	MAR 14 2018 1400	FEDEX	
Fed Ex		Chakeris Tarplin GEL Laboratories	3/15/18 915

SPECIAL INSTRUCTIONS
TRVL-18-028
(1) 9056_ANIONS_IC: COMMON; 9056_ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};
(2) GAMMA_GS: COMMON; AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON; UISO_IE_PRECIP_AEA: COMMON; C14_LSC: COMMON; I129_SEP_LEPS_GS: COMMON; NI63_LSC: COMMON; NP237_IE_PRECIP_AEA: COMMON; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium}; TC99_EIE_LSC: COMMON; TRITIUM_DIST_LSC: COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 11/30/2017 FSR ID = FSR54220 TRVL NUM = TRVL-18-028 A-6003-618 (REV 3)

4/11/2018 Revision #1 11-APR-2018 REV.1

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445991			F17-062-631	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: FITZGERALD, SL	TELEPHONE NO.: 373-7495	PROJECT COORDINATOR: FITZGERALD, SL	REQUIRED TAT 30 Days	
SAMPLING LOCATION: C9865, Shallow Sample 4	PROJECT DESIGNATION: 200-DV-1 Operable Unit Characterization - Shallow Sampling - Soil 2017		SAF NO.: F17-062	ORIGINAL	
ICE CHEST NO.: GWS-743	FIELD LOGBOOK NO.: HNF-N-645 12-12	ACTUAL SAMPLE DEPTH: 9.2 to 11.7 ft	PURCHASE ORDER/CHARGE CODE: 303971	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 91163		BILL OF LADING/AIR BILL NO.: 7800 5304 2496		

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: B3H284~~

MAR 13 2018 Ed Kauer CHPRC

PRESERVATION	Cool <=6C	Cool <=6C	None
HOLDING TIME	30 Days	28 Days/48 Hours	6 Months
TYPE OF CONTAINER	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1
VOLUME	60mL	60mL	500mL
SAMPLE ANALYSIS	7196_CR6: COMMON;	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B3H285	N/A	SOIL	MAR 13 2018	0854	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC	MAR 13 2018 1430	SSU-1	MAR 13 2018 1430
SSU-1	MAR 14 2018 0650	Troy Bacon CHPRC	MAR 14 2018 0650
Troy Bacon CHPRC	MAR 14 2018 1400	FEDEX	
Fed Ex		Chakeris Tarplin/ GEL Laboratories	3/15/18 915

SPECIAL INSTRUCTIONS
TRVL-18-028
(1) 9056_ANIONS_IC: COMMON; 9056_ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};
(2) GAMMA_GS: COMMON; AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON; UISO_IE_PRECIP_AEA: COMMON; C14_LSC: COMMON; I129_SEP_LEPS_GS: COMMON; NI63_LSC: COMMON; NP237_IE_PRECIP_AEA: COMMON; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium}; TC99_EIE_LSC: COMMON; TRITIUM_DIST_LSC: COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 11/30/2017 FSR ID = FSR54221 TRVL NUM = TRVL-18-028 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445991			F17-062-640	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: FITZGERALD, SL	TELEPHONE NO.: 373-7495	PROJECT COORDINATOR: FITZGERALD, SL		REQUIRED TAT 30 Days
SAMPLING LOCATION: ~~C9865~~ 2-13-18, Optional 1 C9944	PROJECT DESIGNATION: 200-DV-1 Operable Unit Characterization - Shallow Sampling - Soil 2017		SAF NO.: F17-062		ORIGINAL
ICE CHEST NO.: GWS-743	FIELD LOGBOOK NO.: HNF-N-645 12-17	ACTUAL SAMPLE DEPTH: 10.5 to 12.0	PURCHASE ORDER/CHARGE CODE: 303971		METHOD OF SHIPMENT: FEDERAL EXPRESS
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9163		BILL OF LADING/AIR BILL NO.: 7800 5304 2416		

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: B3H293~~
MAR 13 2018 Ed Kauer CHPRC

PRESERVATION	Cool <=6C	Cool <=6C (N/A)	None
HOLDING TIME	30 Days	28 Days/48 Hours	6 Months
TYPE OF CONTAINER	G/P		G/P
NO. OF CONTAINER(S)	1		1
VOLUME	60mL	60mL	500mL
SAMPLE ANALYSIS	7196_CR6: COMMON;	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

Ed Kauer CHPRC MAR 13 2018

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B3H294	N/A	SOIL	MAR 13 2018	1004			✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC	MAR 13 2018 1430	SSU-1	MAR 13 2018 1430
SSU-1	MAR 14 2018 0650	Troy Bacon CHPRC	MAR 14 2018 0650
Troy Bacon CHPRC	MAR 14 2018 1400	FEDEX	
Fed Ex		Chakeris Tarpley GEL Laboratories	3/15/18 915

SPECIAL INSTRUCTIONS
TRVL-18-028
(1) 9056_ANIONS_IC: COMMON; 9056_ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};
(2) GAMMA_GS: COMMON; AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON; UISO_IE_PRECIP_AEA: COMMON; C14_LSC: COMMON; I129_SEP_LEPS_GS: COMMON; NI63_LSC: COMMON; NP237_IE_PRECIP_AEA: COMMON; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium}; TC99_EIE_LSC: COMMON; TRITIUM_DIST_LSC: COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 11/30/2017 FSR ID = FSR54194 TRVL NUM = TRVL-18-028 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445991			F17-062-648	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: FITZGERALD, SL	TELEPHONE NO.: 373-7495	PROJECT COORDINATOR: FITZGERALD, SL	REQUIRED TAT: 30 Days	
SAMPLING LOCATION: C9866, Shallow Sample 1	PROJECT DESIGNATION: 200-DV-1 Operable Unit Characterization - Shallow Sampling - Soil 2017		SAF NO.: F17-062	ORIGINAL	
ICE CHEST NO.: GWS-743	FIELD LOGBOOK NO.: HNF-N-645 12-17	ACTUAL SAMPLE DEPTH: 2.1 to 4.2 ft	PURCHASE ORDER/CHARGE CODE: 303971	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9163		BILL OF LADING/AIR BILL NO.: 7801 5304 2496		

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: B3H2B1~~
MAR 13 2018

PRESERVATION	Cool <=6C	Cool <=6C	None
HOLDING TIME	30 Days	28 Days/48 Hours	6 Months
TYPE OF CONTAINER	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1
VOLUME	60mL	60mL	500mL
SAMPLE ANALYSIS	7196_CR6: COMMON;	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B3H2B2	N/A	SOIL	MAR 13 2018	1057	✓	✓	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC [signature]	MAR 13 2018 1430	SSU-1	MAR 13 2018 1430
SSU-1	MAR 14 2018 0650	Troy Bacon CHPRC [signature]	MAR 14 2018 0650
Troy Bacon CHPRC [signature]	MAR 14 2018 1400	FEDEX	
Fed Ex		Chakeris Tarplin GEL Laboratories [signature]	3/15/18 915

SPECIAL INSTRUCTIONS
TRVL-18-029
(1) 9056_ANIONS_IC: COMMON; 9056_ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};
(2) GAMMA_GS: COMMON; AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON; UISO_IE_PRECIP_AEA: COMMON; C14_LSC: COMMON; I129_SEP_LEPS_GS: COMMON; NI63_LSC: COMMON; NP237_IE_PRECIP_AEA: COMMON; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium}; TC99_EIE_LSC: COMMON; TRITIUM_DIST_LSC: COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 11/30/2017 FSR ID = FSR54207 TRVL NUM = TRVL-18-029 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445991	F17-062-651	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	REQUIRED TAT
Tim Callaway /CHPRC	FITZGERALD, SL	373-7495	FITZGERALD, SL	30 Days

SAMPLING LOCATION	PROJECT DESIGNATION	SAF NO.
C9866, Shallow Sample 2	200-DV-1 Operable Unit Characterization - Shallow Sampling - Soil 2017	F17-062

ORIGINAL

ICE CHEST NO.	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH	PURCHASE ORDER/CHARGE CODE	METHOD OF SHIPMENT
GWS-743	HNF-N-645 12 - 17	4.2 to 6.3 ft	303971	FEDERAL EXPRESS

SHIPPED TO	OFFSITE PROPERTY NO.	BILL OF LADING/AIR BILL NO.
GEL Laboratories, LLC	9163	7800 5304 2496

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: B3H2B4~~
MAR 13 2018 Ed Kauer CHPRC

PRESERVATION	Cool <=6C	Cool <=6C	None
HOLDING TIME	30 Days	28 Days/48 Hours	6 Months
TYPE OF CONTAINER	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1
VOLUME	60mL	60mL	500mL
SAMPLE ANALYSIS	7196_CR6: COMMON;	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B3H2B5	N/A	SOIL	MAR 13 2018	1102	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC T. Callaway	MAR 13 2018 1430	SSU-1	MAR 13 2018 1430
SSU-1	MAR 14 2018 0650	Troy Bacon CHPRC Troy L. Bacon	MAR 14 2018 0650
Troy Bacon CHPRC Troy L. Bacon	MAR 14 2018 1400	FEDEX	
Fed Ex		Chakeris Tarplin GEL Laboratories	3/15/18 915

SPECIAL INSTRUCTIONS
TRVL-18-029
(1) 9056_ANIONS_IC: COMMON; 9056_ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};
(2) GAMMA_GS: COMMON; AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON; UISO_IE_PRECIP_AEA: COMMON; C14_LSC: COMMON; I129_SEP_LEPS_GS: COMMON; NI63_LSC: COMMON; NP237_IE_PRECIP_AEA: COMMON; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium}; TC99_EIE_LSC: COMMON; TRITIUM_DIST_LSC: COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 11/30/2017 FSR ID = FSR54208 TRVL NUM = TRVL-18-029 A-6003-618 (REV 3)

4/11/2018 Revision #1 11-APR-2018 REV.1

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445991			F17-062-654	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: FITZGERALD, SL	TELEPHONE NO.: 373-7495	PROJECT COORDINATOR: FITZGERALD, SL	REQUIRED TAT 30 Days	
SAMPLING LOCATION: C9866, Shallow Sample 3	PROJECT DESIGNATION: 200-DV-1 Operable Unit Characterization - Shallow Sampling - Soil 2017		SAF NO.: F17-062	ORIGINAL	
ICE CHEST NO.: GWS-743	FIELD LOGBOOK NO.: HNF-N-645 12-17	ACTUAL SAMPLE DEPTH: 6.3 to 8.2	PURCHASE ORDER/CHARGE CODE: 303971	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 91163		BILL OF LADING/AIR BILL NO.: 7800 5304 2496		

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: B3H2B7~~
MAR 13 2018 Ed Kauer CHPRC

PRESERVATION	Cool <=6C	Cool <=6C	None
HOLDING TIME	30 Days	28 Days/48 Hours	6 Months
TYPE OF CONTAINER	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1
VOLUME	60mL	60mL	500mL
SAMPLE ANALYSIS	7196_CR6: COMMON;	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B3H2B8	N/A	SOIL	MAR 13 2018	1109	✓	✓	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC	MAR 13 2018 1430	SSU-1	MAR 13 2018 1430
SSU-1	MAR 14 2018 0650	Troy Bacon CHPRC	MAR 14 2018 0650
Troy Bacon CHPRC	MAR 14 2018 1400	FEDEX	
Fed Ex		Chakeris Tarpley GEL Laboratories	3/15/18 915

SIGN/ PRINT NAMES

SPECIAL INSTRUCTIONS
TRVL-18-029
(1) 9056_ANIONS_IC: COMMON; 9056_ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};
(2) GAMMA_GS: COMMON; AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON; UISO_IE_PRECIP_AEA: COMMON; C14_LSC: COMMON; I129_SEP_LEPS_GS: COMMON; NI63_LSC: COMMON; NP237_IE_PRECIP_AEA: COMMON; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium}; TC99_EIE_LSC: COMMON; TRITIUM_DIST_LSC: COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 11/30/2017 FSR ID = FSR54209 TRVL NUM = TRVL-18-029 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445991			F17-062-657	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: FITZGERALD, SL	TELEPHONE NO.: 373-7495	PROJECT COORDINATOR: FITZGERALD, SL	REQUIRED TAT 30 Days	
SAMPLING LOCATION: C9866, Shallow Sample 4	PROJECT DESIGNATION: 200-DV-1 Operable Unit Characterization - Shallow Sampling - Soil 2017		SAF NO.: F17-062	ORIGINAL	
ICE CHEST NO.: GWS-743	FIELD LOGBOOK NO.: HNF-N-645/12-12	ACTUAL SAMPLE DEPTH: 8.2 to 10.1 FT	PURCHASE ORDER/CHARGE CODE: 303971	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9163		BILL OF LADING/AIR BILL NO.: 78005304 2496		

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: B3H2C0~~
MAR 13 2018 Ed Kauer CHPRC

PRESERVATION	Cool <=6C	Cool <=6C	None
HOLDING TIME	30 Days	28 Days/48 Hours	6 Months
TYPE OF CONTAINER	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1
VOLUME	60mL	60mL	500mL
SAMPLE ANALYSIS	7196_CR6: COMMON;	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B3H2C1	N/A	SOIL	MAR 13 2018	1116	✓	✓	✓

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC T. Callaway	MAR 13 2018 1430	SSU-1	MAR 13 2018 1430
SSU-1	MAR 14 2018 0650	Troy Bacon CHPRC Troy L. Bacon	MAR 14 2018 0650
Troy Bacon CHPRC Troy L. Bacon	MAR 14 2018 1400	FEDEX	
Fed Ex		Chakeris Tarpley GEL Laboratories	3/15/18 0915

SPECIAL INSTRUCTIONS
TRVL-18-029
(1) 9056_ANIONS_IC: COMMON; 9056_ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};
(2) GAMMA_GS: COMMON; AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON; UISO_IE_PRECIP_AEA: COMMON; C14_LSC: COMMON; I129_SEP_LEPS_GS: COMMON; NI63_LSC: COMMON; NP237_IE_PRECIP_AEA: COMMON; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium}; TC99_EIE_LSC: COMMON; TRITIUM_DIST_LSC: COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 11/30/2017 FSR ID = FSR54210 TRVL NUM = TRVL-18-029 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445991			F17-062-666	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: FITZGERALD, SL	TELEPHONE NO.: 373-7495	PROJECT COORDINATOR: FITZGERALD, SL	REQUIRED TAT: 30 Days	
SAMPLING LOCATION: ~~C9986~~ SL 3-14-18, Optional 1 C9945	PROJECT DESIGNATION: 200-DV-1 Operable Unit Characterization - Shallow Sampling - Soil 2017		SAF NO.: F17-062	ORIGINAL	
ICE CHEST NO.: GWS-743	FIELD LOGBOOK NO.: HNF-N-645 12-17	ACTUAL SAMPLE DEPTH: 10.3 to 11.6 Ft	PURCHASE ORDER/CHARGE CODE: 303971	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9163		BILL OF LADING/AIR BILL NO.: 78005304 2494		

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: B3H2C9~~
MAR 13 2018 Ed Kauer CHPRC

PRESERVATION	Cool <=6C	Cool <=6C	None
HOLDING TIME	30 Days	48 Days/48 Hours	6 Months
TYPE OF CONTAINER	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1
VOLUME	60mL	60mL	500mL
SAMPLE ANALYSIS	7196_CR6: COMMON;	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

MAR 13 2018 Ed Kauer CHPRC

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME
B3H2D0	N/A	SOIL	MAR 13 2018	1326

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC	MAR 13 2018 1430	SSU-1	MAR 13 2018 1430
SSU-1	MAR 14 2018 0650	Troy Bacon CHPRC	MAR 14 2018 0650
Troy Bacon CHPRC	MAR 14 2018 1400	FEDEX	
Fed Ex		Chakeris Tarplin GEL Laboratories	3/15/18 915

SPECIAL INSTRUCTIONS
TRVL-18-029
(1) 9056_ANIONS_IC: COMMON; 9056_ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};
(2) GAMMA_GS: COMMON; AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON; UISO_IE_PRECIP_AEA: COMMON; C14_LSC: COMMON; I129_SEP_LEPS_GS: COMMON; NI63_LSC: COMMON; NP237_IE_PRECIP_AEA: COMMON; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium}; TC99_EIE_LSC: COMMON; TRITIUM_DIST_LSC: COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 11/30/2017 FSR ID = FSR54213 TRVL NUM = TRVL-18-029 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445991		F17-062-669	PAGE 1 OF 1
COLLECTOR: Tim Callaway /CHPRC	COMPANY CONTACT: FITZGERALD, SL	TELEPHONE NO.: 373-7495	PROJECT COORDINATOR: FITZGERALD, SL	REQUIRED TAT: 30 Days
SAMPLING LOCATION: C9866, Optional 2 C9945 5-15-18	PROJECT DESIGNATION: 200-DV-1 Operable Unit Characterization - Shallow Sampling - Soil 2017		SAF NO.: F17-062	ORIGINAL
ICE CHEST NO.: GWS-743	FIELD LOGBOOK NO.: HNF-N-645 12 - 17	ACTUAL SAMPLE DEPTH: 11.6 to 15.0 FT	PURCHASE ORDER/CHARGE CODE: 303971	METHOD OF SHIPMENT: FEDERAL EXPRESS
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9163		BILL OF LADING/AIR BILL NO.: 7800 5304 2496	

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: B3H2D2~~
MAR 13 2018 Ed Kauer CHPRC

PRESERVATION	Cool <=6C	Cool <=6C	None
HOLDING TIME	30 Days	28 Days/48 Hours	6 Months
TYPE OF CONTAINER	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1
VOLUME	60mL	60mL	500mL
SAMPLE ANALYSIS	7196_CR6: COMMON;	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B3H2D3	N/A	SOIL	MAR 13 2018	1340	✓	✓	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Tim Callaway /CHPRC	MAR 13 2018 1430	SSU-1	MAR 13 2018 1430
SSU-1	MAR 14 2018 0650	Troy Bacon CHPRC	MAR 14 2018 0650
Troy Bacon CHPRC	MAR 14 2018 1400	FEDEX	
Fed Ex		Chakeris Tarplin GEL Laboratories	3/15/18 915

SPECIAL INSTRUCTIONS
TRVL-18-029
(1) 9056_ANIONS_IC: COMMON; 9056_ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};
(2) GAMMA_GS: COMMON; AMCMISO_IE_PRECIP_AEA: COMMON; PUISO_IE_PRECIP_AEA: COMMON; UISO_IE_PRECIP_AEA: COMMON; C14_LSC: COMMON; I129_SEP_LEPS_GS: COMMON; NI63_LSC: COMMON; NP237_IE_PRECIP_AEA: COMMON; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium}; TC99_EIE_LSC: COMMON; TRITIUM_DIST_LSC: COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 11/30/2017 FSR ID = FSR54214 TRVL NUM = TRVL-18-029 A-6003-618 (REV 3)

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

HS

Client: CPRC	SDG/AR/COC/Work Order: 445991
Received By: C. Tarplin	Date Received: 03-15-2018
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 7800 5304 2493 7800 6606 4354

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#:
COC/Samples marked or classified as radioactive?	X		Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM mR/Hr Classified as: Rad 1 Rad 2 Rad 3
Is package, COC, and/or Samples marked HAZ?		X	If yes, select Hazards below, and contact the GEL Safety Group. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	X			
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	X			Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: 2 °C
4	Daily check performed and passed on IR temperature gun?	X			**Temperature Device Serial #:** IR4-17 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	X			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?	X			If Yes, Are Encores or Soil Kits present? Yes___ No X (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes X No___ N/A___ (If unknown, select No) VOA vials free of headspace? Yes X No___ N/A___ Sample ID's and containers affected:
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles? KS 3/16/18	X			Sample ID's affected: B3H265 no sample time on chain.
11	Number of containers received match number indicated on COC?	X			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			X	
13	COC form is properly signed in relinquished/received sections?	X			

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials CS Date 3/16/18 Page 1 of 1

GL-CHL-SR-001 Rev 5

Data Review Qualifier Definitions

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

Report Date: 11−APR−18

Project Specific Qualifier Definitions for GEL Client Code: CPRC

Qualifier	Qualifier Definition	Department	Fraction
U	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.		
J	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated	Organics	
P	Aroclor target analyte with greater than 25% difference between column analyses.	Organics	
C	Analyte has been confirmed by GC/MS analysis	Organics	Pesticide
B	The analyte was detected in both the associated QC blank and in the sample.	Organics	
E	Concentration exceeds the calibration range of the instrument	Organics	
A	The TIC is a suspected aldol−condensation product	Organics	Semi−Volatile
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
N	Spike Sample recovery is outside control limits.		
*	Duplicate analysis not within control limits	Inorganics	
>	Result greater than quantifiable range or greater than upper limit of the analysis range	General Chemistry	
Z	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
B	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	Inorganics	Metals
D	Results are reported from a diluted aliquot of sample.		
E	Reported value is estimated due to interferences. See comment in narrative.	Inorganics	Metals
M	Duplicate precision not met.	Inorganics	Metals
o	Analyte failed to recover within LCS limits (0rganics only)	Organics	
S	Reported value determined by the Method of Standard Additions (MSA)	Inorganics	
T	Spike and/or spike duplicate sample recovery is outside control limits.	Organics	
W	Post−digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.	Inorganics	
B	The analyte was detected in the associated method blank >/= MDC or >5% sample activity.	Radiological	
Y	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
+	Correlation coefficient for Method of Standard Additions (MSA) is < 0.995	Inorganics	
B	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	General Chemistry	
C	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	Inorganics	Metals
C	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	General Chemistry	
<	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide	General Chemistry	
UX	Gamma Spectroscopy−−Uncertain identification	Radiological	

Revision #1 11-APR-2018

Laboratory Certifications

List of current GEL Certifications as of 11 April 2018

State	Certification
Alaska	17−018
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA180011
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122018−1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	9904
Pennsylvania NELAP	68−00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−18−13
Utah NELAP	SC000122018−26
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL445991
Work Order #: 445991

Product: **Ion Chromatography**
Analytical Method: 9056_ANIONS_IC
Analytical Procedure: GL-GC-E-086 REV# 25
Analytical Batches: 1748992, 1749013, 1748990 and 1749011

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

GEL Sample ID#	Client Sample Identification
445991001	B3H265
445991002	B3H268
445991003	B3H273
445991004	B3H276
445991005	B3H279
445991006	B3H282
445991007	B3H285
445991008	B3H294
445991009	B3H2B2
445991010	B3H2B5
445991011	B3H2B8
445991012	B3H2C1
445991013	B3H2D0
445991014	B3H2D3
1203993739	Method Blank (MB)
1203993740	Laboratory Control Sample (LCS)
1203993751	445991003(B3H273) Sample Duplicate (DUP)
1203993810	Method Blank (MB)
1203993811	Laboratory Control Sample (LCS)
1203993812	445991011(B3H2B8) Sample Duplicate (DUP)
1203993813	445991011(B3H2B8) Matrix Spike (MS)
1203993862	445991003(B3H273) Matrix Spike (MS)

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

Data Summary:

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

Technical Information

Sample Re-analysis
Samples445991007 (B3H285), 445991008 (B3H294), 445991009 (B3H2B2) and 445991010 (B3H2B5) were re-analyzed due to CCV failure. The reanalysis data with passing instrument QC was reported. Samples1203993739 (MB), 1203993740 (LCS), 1203993751 (B3H273DUP), 1203993862 (B3H273MS), 445991001 (B3H265),

445991002 (B3H268), 445991003 (B3H273), 445991004 (B3H276), 445991005 (B3H279), 445991006 (B3H282), 445991007 (B3H285), 445991008 (B3H294), 445991009 (B3H2B2) and 445991010 (B3H2B5) were re-analyzed due to CCB failure. The reanalysis data with passing instrument QC was reported.

Miscellaneous Information

Manual Integrations

Samples 1203993740 (LCS), 1203993751 (B3H273DUP), 445991002 (B3H268), 445991003 (B3H273), 445991004 (B3H276), 445991005 (B3H279), 445991006 (B3H282), 445991007 (B3H285), 445991008 (B3H294), 445991009 (B3H2B2), 445991010 (B3H2B5), 1203993812 (B3H2B8DUP), 445991011 (B3H2B8), 445991013 (B3H2D0) and 445991014 (B3H2D3) were manually integrated to correctly position the baseline as set in the calibration standards.

Product: **Hexavalent Chromium**
Analytical Method: 7196_CR6
Analytical Procedure: GL-GC-E-044 REV# 22
Analytical Batch: 1747659

Preparation Method: SW846 3060A
Preparation Procedure: GL-GC-E-044 REV# 22
Preparation Batch: 1747657

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

GEL Sample ID#	Client Sample Identification
445991001	B3H265
445991002	B3H268
445991003	B3H273
445991004	B3H276
445991005	B3H279
445991006	B3H282
445991007	B3H285
445991008	B3H294
445991009	B3H2B2
445991010	B3H2B5
445991011	B3H2B8
445991012	B3H2C1
445991013	B3H2D0
445991014	B3H2D3
1203990661	Method Blank (MB)
1203990662	Laboratory Control Sample (LCS)
1203990663	Insoluble Lab Control Sample (ILCS)
1203990664	445991013(B3H2D0) Sample Duplicate (DUP)
1203990665	445991014(B3H2D3) Sample Duplicate (DUP)
1203990666	445991013(B3H2D0) Matrix Spike (MS)
1203990667	445991014(B3H2D3) Matrix Spike (MS)

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

Data Summary:

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

Certification Statement

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

GEL LABORATORIES LLC

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

Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL445991 GEL Work Order: 445991

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.

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: Aubrey Kingsbury**

Date: 29 MAR 2018 **Title: Analyst I**

Sample Data Summary

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

Certificate of Analysis

Report Date: April 11, 2018

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-062

Client Sample ID: B3H265
Sample ID: 445991001
Matrix: SOIL
Collect Date: 13-MAR-18 07:44
Receive Date: 15-MAR-18
Collector: Client
Moisture: 6.47%

Project: CPRC0F17062
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON + (Add-on) "Dry Weight Corrected"												
Chloride		3830	768	2130	ug/Kg	9.98	1	LXA2	03/21/18	1153	1748992	1
Fluoride		1670	363	1070	ug/Kg	9.98	1					
Nitrite-N	U	352	352	1070	ug/Kg	9.98	1					
Phosphorus in phosphate	U	715	715	2130	ug/Kg	9.98	1					
Sulfate		50200	1420	4270	ug/Kg	9.98	1					
Nitrate-N		2180	352	1070	ug/Kg	9.98	1	LXA2	03/22/18	1834	1748992	2
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium		1300	135	337	ug/Kg	31.5	1	VH1	03/19/18	1042	1747659	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	03/17/18	1324	1747657
SW846 9056A	SW846 9056A Total Anions in Soil	LXA2	03/21/18	0937	1748990

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	9056_ANIONS_IC	
3	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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

Certificate of Analysis

Report Date: April 11, 2018

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-062

Client Sample ID: B3H268
Sample ID: 445991002
Matrix: SOIL
Collect Date: 13-MAR-18 08:00
Receive Date: 15-MAR-18
Collector: Client
Moisture: 2.7%

Project: CPRC0F17062
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON + (Add-on) "Dry Weight Corrected"												
Chloride		2560	731	2030	ug/Kg	9.88	1	LXA2	03/21/18	1222	1748992	1
Fluoride		1430	345	1020	ug/Kg	9.88	1					
Nitrite-N	B	358	335	1020	ug/Kg	9.88	1					
Phosphorus in phosphate	U	680	680	2030	ug/Kg	9.88	1					
Sulfate		15100	1350	4060	ug/Kg	9.88	1					
Nitrate-N		2080	335	1020	ug/Kg	9.88	1	LXA2	03/22/18	1903	1748992	2
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	B	165	87.0	217	ug/Kg	21.2	1	VH1	03/19/18	1048	1747659	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	03/17/18	1324	1747657
SW846 9056A	SW846 9056A Total Anions in Soil	LXA2	03/21/18	0937	1748990

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	9056_ANIONS_IC	
3	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: April 11, 2018

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-062

Client Sample ID: B3H273
Sample ID: 445991003
Matrix: SOIL
Collect Date: 13-MAR-18 08:33
Receive Date: 15-MAR-18
Collector: Client
Moisture: 5.73%

Project: CPRC0F17062
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON + (Add-on) "Dry Weight Corrected"												
Chloride	B	1480	762	2120	ug/Kg	9.98	1	LXA2	03/21/18	1251	1748992	1
Fluoride	B	578	360	1060	ug/Kg	9.98	1					
Nitrite-N	B	363	349	1060	ug/Kg	9.98	1					
Phosphorus in phosphate	U	709	709	2120	ug/Kg	9.98	1					
Sulfate		5800	1410	4230	ug/Kg	9.98	1					
Nitrate-N	B	1030	349	1060	ug/Kg	9.98	1	LXA2	03/22/18	1931	1748992	2
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	B	131	106	264	ug/Kg	24.9	1	VH1	03/19/18	1048	1747659	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	03/17/18	1324	1747657
SW846 9056A	SW846 9056A Total Anions in Soil	LXA2	03/21/18	0937	1748990

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	9056_ANIONS_IC	
3	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: April 11, 2018

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-062

Client Sample ID: B3H276
Sample ID: 445991004
Matrix: SOIL
Collect Date: 13-MAR-18 08:39
Receive Date: 15-MAR-18
Collector: Client
Moisture: 5.23%

Project: CPRC0F17062
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON + (Add-on) "Dry Weight Corrected"												
Chloride	B	1650	747	2070	ug/Kg	9.83	1	LXA2	03/21/18	1417	1748992	1
Fluoride	B	778	353	1040	ug/Kg	9.83	1					
Nitrite-N	B	357	342	1040	ug/Kg	9.83	1					
Phosphorus in phosphate	U	695	695	2070	ug/Kg	9.83	1					
Sulfate		7970	1380	4150	ug/Kg	9.83	1					
Nitrate-N		3500	342	1040	ug/Kg	9.83	1	LXA2	03/22/18	2058	1748992	2
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	B	132	130	324	ug/Kg	30.7	1	VH1	03/19/18	1048	1747659	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	03/17/18	1324	1747657
SW846 9056A	SW846 9056A Total Anions in Soil	LXA2	03/21/18	0937	1748990

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	9056_ANIONS_IC	
3	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: April 11, 2018

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-062

Client Sample ID: B3H279
Sample ID: 445991005
Matrix: SOIL
Collect Date: 13-MAR-18 08:33
Receive Date: 15-MAR-18
Collector: Client
Moisture: 5.15%

Project: CPRC0F17062
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON + (Add-on) "Dry Weight Corrected"												
Chloride	B	1490	746	2070	ug/Kg	9.83	1	LXA2	03/21/18	1446	1748992	1
Fluoride	B	524	352	1040	ug/Kg	9.83	1					
Nitrite-N	U	342	342	1040	ug/Kg	9.83	1					
Phosphorus in phosphate	U	694	694	2070	ug/Kg	9.83	1					
Sulfate		5410	1380	4140	ug/Kg	9.83	1					
Nitrate-N	B	931	342	1040	ug/Kg	9.83	1	LXA2	03/22/18	2225	1748992	2
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	B	108	87.6	219	ug/Kg	20.8	1	VH1	03/19/18	1049	1747659	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	03/17/18	1324	1747657
SW846 9056A	SW846 9056A Total Anions in Soil	LXA2	03/21/18	0937	1748990

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	9056_ANIONS_IC	
3	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Report Date: April 11, 2018

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-062

Client Sample ID: B3H282
Sample ID: 445991006
Matrix: SOIL
Collect Date: 13-MAR-18 08:46
Receive Date: 15-MAR-18
Collector: Client
Moisture: 6.24%

Project: CPRC0F17062
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON + (Add-on) "Dry Weight Corrected"												
Chloride	B	1770	751	2090	ug/Kg	9.78	1	LXA2	03/21/18	1515	1748992	1
Fluoride	B	827	355	1040	ug/Kg	9.78	1					
Nitrite-N	B	366	344	1040	ug/Kg	9.78	1					
Phosphorus in phosphate	U	699	699	2090	ug/Kg	9.78	1					
Sulfate		9240	1390	4170	ug/Kg	9.78	1					
Nitrate-N		6360	344	1040	ug/Kg	9.78	1	LXA2	03/22/18	2254	1748992	2
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	B	139	112	280	ug/Kg	26.3	1	VH1	03/19/18	1049	1747659	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	03/17/18	1324	1747657
SW846 9056A	SW846 9056A Total Anions in Soil	LXA2	03/21/18	0937	1748990

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	9056_ANIONS_IC	
3	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Report Date: April 11, 2018

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-062

Client Sample ID: B3H285
Sample ID: 445991007
Matrix: SOIL
Collect Date: 13-MAR-18 08:54
Receive Date: 15-MAR-18
Collector: Client
Moisture: 4.37%

Project: CPRC0F17062
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON + (Add-on) "Dry Weight Corrected"												
Chloride	B	1570	745	2070	ug/Kg	9.90	1	LXA2	03/21/18	1656	1748992	1
Fluoride	B	841	352	1040	ug/Kg	9.90	1					
Nitrite-N	B	376	342	1040	ug/Kg	9.90	1					
Sulfate		7180	1380	4140	ug/Kg	9.90	1					
Nitrate-N		2680	342	1040	ug/Kg	9.90	1	LXA2	03/22/18	2322	1748992	2
Phosphorus in phosphate	B	740	694	2070	ug/Kg	9.90	1					
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	B	135	132	331	ug/Kg	31.6	1	VH1	03/19/18	1049	1747659	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	03/17/18	1324	1747657
SW846 9056A	SW846 9056A Total Anions in Soil	LXA2	03/21/18	0937	1748990

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	9056_ANIONS_IC	
3	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Report Date: April 11, 2018

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-062

Client Sample ID: B3H294
Sample ID: 445991008
Matrix: SOIL
Collect Date: 13-MAR-18 10:04
Receive Date: 15-MAR-18
Collector: Client
Moisture: 4.23%

Project: CPRC0F17062
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON + (Add-on) "Dry Weight Corrected"												
Chloride		2570	741	2060	ug/Kg	9.85	1	LXA2	03/21/18	1725	1748992	1
Fluoride		1150	350	1030	ug/Kg	9.85	1					
Nitrite-N	B	353	339	1030	ug/Kg	9.85	1					
Sulfate		60700	1370	4110	ug/Kg	9.85	1					
Nitrate-N		2820	339	1030	ug/Kg	9.85	1	LXA2	03/22/18	2351	1748992	2
Phosphorus in phosphate	U	689	689	2060	ug/Kg	9.85	1					
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	B	111	89.9	225	ug/Kg	21.5	1	VH1	03/19/18	1050	1747659	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	03/17/18	1324	1747657
SW846 9056A	SW846 9056A Total Anions in Soil	LXA2	03/21/18	0937	1748990

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	9056_ANIONS_IC	
3	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: April 11, 2018

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-062

Client Sample ID: B3H2B2
Sample ID: 445991009
Matrix: SOIL
Collect Date: 13-MAR-18 10:57
Receive Date: 15-MAR-18
Collector: Client
Moisture: 5.27%

Project: CPRC0F17062
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON + (Add-on) "Dry Weight Corrected"												
Chloride	B	1420	752	2090	ug/Kg	9.90	1	LXA2	03/21/18	1754	1748992	1
Fluoride	B	569	355	1050	ug/Kg	9.90	1					
Nitrite-N	U	345	345	1050	ug/Kg	9.90	1					
Sulfate		6030	1390	4180	ug/Kg	9.90	1					
Nitrate-N	B	691	345	1050	ug/Kg	9.90	1	LXA2	03/23/18	0020	1748992	2
Phosphorus in phosphate	U	700	700	2090	ug/Kg	9.90	1					
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	U	102	102	256	ug/Kg	24.2	1	VH1	03/19/18	1051	1747659	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	03/17/18	1324	1747657
SW846 9056A	SW846 9056A Total Anions in Soil	LXA2	03/21/18	0937	1748990

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	9056_ANIONS_IC	
3	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: April 11, 2018

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-062

Client Sample ID: B3H2B5
Sample ID: 445991010
Matrix: SOIL
Collect Date: 13-MAR-18 11:02
Receive Date: 15-MAR-18
Collector: Client
Moisture: 4.83%

Project: CPRC0F17062
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON + (Add-on) "Dry Weight Corrected"												
Chloride	B	1320	755	2100	ug/Kg	9.98	1	LXA2	03/21/18	1823	1748992	1
Fluoride	B	488	356	1050	ug/Kg	9.98	1					
Nitrite-N	B	366	346	1050	ug/Kg	9.98	1					
Sulfate	B	3300	1390	4190	ug/Kg	9.98	1					
Nitrate-N	B	922	346	1050	ug/Kg	9.98	1	LXA2	03/23/18	0049	1748992	2
Phosphorus in phosphate	U	702	702	2100	ug/Kg	9.98	1					
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	B	129	127	317	ug/Kg	30.2	1	VH1	03/19/18	1051	1747659	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	03/17/18	1324	1747657
SW846 9056A	SW846 9056A Total Anions in Soil	LXA2	03/21/18	0937	1748990

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	9056_ANIONS_IC	
3	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Report Date: April 11, 2018

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-062

Client Sample ID: B3H2B8
Sample ID: 445991011
Matrix: SOIL
Collect Date: 13-MAR-18 11:09
Receive Date: 15-MAR-18
Collector: Client
Moisture: 5.91%

Project: CPRC0F17062
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON + (Add-on) "Dry Weight Corrected"												
Chloride	B	1170	724	2010	ug/Kg	9.46	1	JXH5	03/21/18	2056	1749013	1
Fluoride	B	792	342	1010	ug/Kg	9.46	1					
Nitrate-N		2200	332	1010	ug/Kg	9.46	1					
Nitrite-N	U	332	332	1010	ug/Kg	9.46	1					
Phosphorus in phosphate	B	752	673	2010	ug/Kg	9.46	1					
Sulfate		4340	1340	4020	ug/Kg	9.46	1					
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	B	120	118	295	ug/Kg	27.7	1	VH1	03/19/18	1052	1747659	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	03/17/18	1324	1747657
SW846 9056A	SW846 9056A Total Anions in Soil	JXH5	03/21/18	1007	1749011

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Report Date: April 11, 2018

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-062

Client Sample ID: B3H2C1
Sample ID: 445991012
Matrix: SOIL
Collect Date: 13-MAR-18 11:16
Receive Date: 15-MAR-18
Collector: Client
Moisture: 7.22%

Project: CPRC0F17062
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON + (Add-on) "Dry Weight Corrected"												
Chloride	B	1340	714	1980	ug/Kg	9.20	1	JXH5	03/21/18	2229	1749013	1
Fluoride		1000	337	991	ug/Kg	9.20	1					
Nitrate-N		2680	327	991	ug/Kg	9.20	1					
Nitrite-N	U	327	327	991	ug/Kg	9.20	1					
Phosphorus in phosphate	B	850	664	1980	ug/Kg	9.20	1					
Sulfate		5100	1320	3960	ug/Kg	9.20	1					
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	U	92.2	92.2	231	ug/Kg	21.4	1	VH1	03/19/18	1052	1747659	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	03/17/18	1324	1747657
SW846 9056A	SW846 9056A Total Anions in Soil	JXH5	03/21/18	1007	1749011

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: April 11, 2018

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-062

Client Sample ID: B3H2D0
Sample ID: 445991013
Matrix: SOIL
Collect Date: 13-MAR-18 13:26
Receive Date: 15-MAR-18
Collector: Client
Moisture: 3.25%

Project: CPRC0F17062
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON + (Add-on) "Dry Weight Corrected"												
Chloride		2290	629	1750	ug/Kg	8.46	1	JXH5	03/21/18	2300	1749013	1
Fluoride		1510	297	874	ug/Kg	8.46	1					
Nitrate-N		1430	288	874	ug/Kg	8.46	1					
Nitrite-N	U	288	288	874	ug/Kg	8.46	1					
Phosphorus in phosphate	B	772	586	1750	ug/Kg	8.46	1					
Sulfate		41600	1160	3500	ug/Kg	8.46	1					
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	B	117	115	287	ug/Kg	27.8	1	VH1	03/19/18	1052	1747659	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	03/17/18	1324	1747657
SW846 9056A	SW846 9056A Total Anions in Soil	JXH5	03/21/18	1007	1749011

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: April 11, 2018

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F17-062

Client Sample ID: B3H2D3
Sample ID: 445991014
Matrix: SOIL
Collect Date: 13-MAR-18 13:40
Receive Date: 15-MAR-18
Collector: Client
Moisture: 4.27%

Project: CPRC0F17062
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC:COMMON + (Add-on) "Dry Weight Corrected"												
Chloride	B	1260	737	2050	ug/Kg	9.80	1	JXH5	03/21/18	2331	1749013	1
Fluoride	B	788	348	1020	ug/Kg	9.80	1					
Nitrate-N		2130	338	1020	ug/Kg	9.80	1					
Nitrite-N	U	338	338	1020	ug/Kg	9.80	1					
Phosphorus in phosphate	U	686	686	2050	ug/Kg	9.80	1					
Sulfate		85000	1360	4100	ug/Kg	9.80	1					
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	B	137	135	337	ug/Kg	32.3	1	VH1	03/19/18	1054	1747659	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	03/17/18	1324	1747657
SW846 9056A	SW846 9056A Total Anions in Soil	JXH5	03/21/18	1007	1749011

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	7196_CR6	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

Quality Control Summary

GEL LABORATORIES LLC

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QC Summary

Report Date: April 11, 2018

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **445991**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 1748992										
QC1203993751 445991003 DUP										
Chloride	B	1480	B	1390	ug/Kg	6.2 ^		(+/-2110)	LXA2	03/21/18 13:20
Fluoride	B	578	B	588	ug/Kg	1.75 ^		(+/-1060)		
Nitrate-N	B	1030	B	975	ug/Kg	5 ^		(+/-1060)		03/22/18 20:00
Nitrite-N	B	363	B	361	ug/Kg	0.541 ^		(+/-1060)		03/21/18 13:20
Phosphorus in phosphate	U	709	U	707	ug/Kg	N/A				
Sulfate		5800		5530	ug/Kg	4.76 ^		(+/-4220)		
QC1203993740 LCS										
Chloride	49000			47500	ug/Kg		97	(80%-120%)		03/21/18 11:24
Fluoride	24500			23000	ug/Kg		93.7	(80%-120%)		
Nitrate-N	24500			22800	ug/Kg		93.1	(80%-120%)		03/22/18 18:05
Nitrite-N	24500			23300	ug/Kg		95.1	(80%-120%)		03/21/18 11:24
Phosphorus in phosphate	12300			11800	ug/Kg		96.4	(80%-120%)		
Sulfate	98000			102000	ug/Kg		104	(80%-120%)		
QC1203993739 MB										
Chloride			U	720	ug/Kg					03/21/18 10:56

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QC Summary

Workorder: **445991**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1748992											
Fluoride				U	340	ug/Kg				LXA2	03/21/18 10:56
Nitrate-N				U	330	ug/Kg					03/22/18 17:36
Nitrite-N				U	330	ug/Kg					03/21/18 10:56
Phosphorus in phosphate				U	670	ug/Kg					
Sulfate				U	1330	ug/Kg					
QC1203993862 445991003 MS											
Chloride	52400	B	1480		49900	ug/Kg		92.5	(75%-125%)		03/21/18 13:48
Fluoride	26200	B	578		24300	ug/Kg		90.5	(75%-125%)		
Nitrate-N	26200	B	1030		25500	ug/Kg		93.4	(75%-125%)		03/22/18 20:29
Nitrite-N	26200	B	363		24900	ug/Kg		93.7	(75%-125%)		03/21/18 13:48
Phosphorus in phosphate	13100	U	709		12300	ug/Kg		90.6	(75%-125%)		
Sulfate	105000		5800		104000	ug/Kg		93.9	(75%-125%)		
Batch 1749013											
QC1203993812 445991011 DUP											
Chloride		B	1170	B	1140	ug/Kg	2.21 ^		(+/-2000)	JXH5	03/21/18 21:27
Fluoride		B	792	B	787	ug/Kg	0.599 ^		(+/-1000)		
Nitrate-N			2200		2160	ug/Kg	1.57 ^		(+/-1000)		

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QC Summary

Workorder: **445991**

Parmname	NOM		Sample	Qual	QC	Units	RPD%		REC%	Range	Anlst	Date Time
Ion Chromatography												
Batch 1749013												
Nitrite-N		U	332	U	330	ug/Kg	N/A				JXH5	03/21/18 21:27
Phosphorus in phosphate		B	752	B	821	ug/Kg	8.83	^		(+/-2000)		
Sulfate			4340	B	3900	ug/Kg	10.8	^		(+/-4000)		
QC1203993811 LCS												
Chloride	49600				46500	ug/Kg			93.7	(80%-120%)		03/21/18 20:25
Fluoride	24800				24300	ug/Kg			98.1	(80%-120%)		
Nitrate-N	24800				23600	ug/Kg			95	(80%-120%)		
Nitrite-N	24800				23800	ug/Kg			96	(80%-120%)		
Phosphorus in phosphate	12400				12000	ug/Kg			96.5	(80%-120%)		
Sulfate	99300				95700	ug/Kg			96.4	(80%-120%)		
QC1203993810 MB												
Chloride				U	720	ug/Kg						03/21/18 19:55
Fluoride				U	340	ug/Kg						
Nitrate-N				U	330	ug/Kg						
Nitrite-N				U	330	ug/Kg						
Phosphorus in phosphate				U	670	ug/Kg						
Sulfate				U	1330	ug/Kg						

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QC Summary

Workorder: **445991**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1749013											
QC1203993813 445991011 MS											
Chloride	48900	B	1170		43800	ug/Kg		87.2	(75%-125%)	JXH5	03/21/18 21:58
Fluoride	24400	B	792		22800	ug/Kg		90	(75%-125%)		
Nitrate-N	24400		2200		24200	ug/Kg		90.2	(75%-125%)		
Nitrite-N	24400	U	332		22200	ug/Kg		89.7	(75%-125%)		
Phosphorus in phosphate	12200	B	752		10700	ug/Kg		81.1	(75%-125%)		
Sulfate	97700		4340		92100	ug/Kg		89.8	(75%-125%)		
Spectrometric Analysis											
Batch 1747659											
QC1203990664 445991013 DUP											
Hexavalent Chromium		B	117	B	117	ug/Kg	0.00694 ^		(+/-287)	VH1	03/19/18 10:53
QC1203990665 445991014 DUP											
Hexavalent Chromium		B	137	B	167	ug/Kg	0.0161 ^		(+/-337)		03/19/18 10:54
QC1203990663 ILCS											
Hexavalent Chromium	5150				4350	ug/Kg		84.3	(80%-120%)		03/19/18 10:42
QC1203990662 LCS											
Hexavalent Chromium	3810				3630	ug/Kg		95.2	(80%-120%)		03/19/18 10:42
QC1203990661 MB											
Hexavalent Chromium				U	129	ug/Kg					03/19/18 10:41
QC1203990666 445991013 MS											
Hexavalent Chromium	3190	B	117		2980	ug/Kg		91.3	(75%-125%)		03/19/18 10:53

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QC Summary

Workorder: **445991**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Spectrometric Analysis											
Batch 1747659											
QC1203990667 445991014 MS											
Hexavalent Chromium	2740	B	137	2480	ug/Kg		86.8	(75%-125%)	VH1	03/19/18	10:55

Notes:

The Qualifiers in this report are defined as follows:

- < Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide
- > Result greater than quantifiable range or greater than upper limit of the analysis range
- 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.
- N Spike Sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

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

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL445991
Work Order #: 445991

Product: **NP237_IE_PRECIP_AEA: COMMON**
Analytical Method: ASTM C 1475-00 Modified
Analytical Procedure: GL-RAD-A-032 REV# 21
Analytical Batch: 1747642

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 22
Preparation Batch: 1747620

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

GEL Sample ID#	Client Sample Identification
445991001	B3H265
445991002	B3H268
445991003	B3H273
445991004	B3H276
445991005	B3H279
445991006	B3H282
445991007	B3H285
445991008	B3H294
445991009	B3H2B2
445991010	B3H2B5
445991011	B3H2B8
445991012	B3H2C1
445991013	B3H2D0
445991014	B3H2D3
1203990630	Method Blank (MB)
1203990631	445991003(B3H273) Sample Duplicate (DUP)
1203990632	Laboratory Control Sample (LCS)

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

Data Summary:

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

Technical Information

Recounts
Samples 445991004 (B3H276), 445991009 (B3H2B2) and 445991013 (B3H2D0) were recounted on the gas flow proportional counter due to high tracer yields. The recounts are reported.

Product: **PUISO_PRECIP_AEA:COMMON**
Analytical Method: PUISO_PRECIP_AEA
Analytical Procedure: GL-RAD-A-011 REV# 26
Analytical Batch: 1747643

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 22
Preparation Batch: 1747620

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

GEL Sample ID#	Client Sample Identification
445991001	B3H265
445991002	B3H268
445991003	B3H273
445991004	B3H276
445991005	B3H279
445991006	B3H282
445991007	B3H285
445991008	B3H294
445991009	B3H2B2
445991010	B3H2B5
445991011	B3H2B8
445991012	B3H2C1
445991013	B3H2D0
445991014	B3H2D3
1203990633	Method Blank (MB)
1203990634	445991003(B3H273) Sample Duplicate (DUP)
1203990635	Laboratory Control Sample (LCS)

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

Data Summary:

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

Technical Information

Recounts
Samples 1203990635 (LCS), 445991002 (B3H268), 445991004 (B3H276), 445991007 (B3H285) and 445991014 (B3H2D3) were recounted due to a peak shift. The recounts are reported.

Miscellaneous Information

Additional Comments
Samples 1203990633 (MB), 445991001 (B3H265), 445991002 (B3H268), 445991003 (B3H273), 445991005 (B3H279) and 445991007 (B3H285) did not meet the resolution requirement of having a full width half maximum of 100 keV or less for the tracer; however, the tracer yield requirement was met and the tracer peaks are within the tracer region of interest. The tracer peak centroid for samples 445991010 (B3H2B5) and 445991013 (B3H2D0) are greater than 50 keV from the expected library energy value for the tracer; however, the tracer yield requirement was met and the tracer peaks are within the tracer region of interest.

Product: **UISO_IE_PRECIP_AEA:COMMON**
Analytical Method: UISO_IE_PRECIP_AEA
Analytical Procedure: GL-RAD-A-011 REV# 26
Analytical Batch: 1747644

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 22
Preparation Batch: 1747620

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

GEL Sample ID#	Client Sample Identification
445991001	B3H265
445991002	B3H268
445991003	B3H273
445991004	B3H276
445991005	B3H279
445991006	B3H282
445991007	B3H285
445991008	B3H294
445991009	B3H2B2
445991010	B3H2B5
445991011	B3H2B8
445991012	B3H2C1
445991013	B3H2D0
445991014	B3H2D3
1203990636	Method Blank (MB)
1203990637	445991003(B3H273) Sample Duplicate (DUP)
1203990638	Laboratory Control Sample (LCS)

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

Data Summary:

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

Technical Information

Recounts
Sample 1203990636 (MB) was recounted due to a suspected false positive. The recount is reported.

Product: **AMCMISO_EIE_PRECIP_AEA: COMMON**
Analytical Method: AMCMISO_EIE_PREC_AEA

Analytical Procedure: GL-RAD-A-011 REV# 26
Analytical Batch: 1752254

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 22
Preparation Batch: 1747620

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

GEL Sample ID#	Client Sample Identification
445991001	B3H265
445991002	B3H268
445991003	B3H273
445991004	B3H276
445991005	B3H279
445991006	B3H282
445991007	B3H285
445991008	B3H294
445991009	B3H2B2
445991010	B3H2B5
445991011	B3H2B8
445991012	B3H2C1
445991013	B3H2D0
445991014	B3H2D3
1204001199	Method Blank (MB)
1204001200	445991003(B3H273) Sample Duplicate (DUP)
1204001201	Laboratory Control Sample (LCS)

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

Data Summary:

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

Quality Control (QC) Information

Tracer/Carrier Yield
Samples, (See Below), did not meet the client tracer yield requirements, however it is less than 110 percent and does meet the GEL standard tracer yield requirements.

Sample	Analyte	Value
445991005 (B3H279)	Americium-243 Tracer	107* (30%-105%)
445991009 (B3H2B2)	Americium-243 Tracer	106* (30%-105%)

Technical Information

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

Recounts
Samples 1204001201 (LCS), 445991001 (B3H265) and 445991005 (B3H279) were recounted due to high carrier/tracer yield. The recounts are reported. Sample 445991004 (B3H276) was recounted due to a suspected

false positive. The recount is reported. Sample 445991009 (B3H2B2) was recounted due to high tracer yield. The original count is reported.

Product: **Dry Weight**
Analytical Method: ASTM D 2216 (Modified)
Analytical Procedure: GL-OA-E-020 REV# 12
Analytical Batch: 1747620

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 22
Preparation Batch: 1747620

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

GEL Sample ID#	Client Sample Identification
445991001	B3H265
445991002	B3H268
445991003	B3H273
445991004	B3H276
445991005	B3H279
445991006	B3H282
445991007	B3H285
445991008	B3H294
445991009	B3H2B2
445991010	B3H2B5
445991011	B3H2B8
445991012	B3H2C1
445991013	B3H2D0
445991014	B3H2D3
1203990551	445991001(B3H265) Sample Duplicate (DUP)

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

Data Summary:

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

Product: **GAMMA_GS:COMMON**
Analytical Method: GAMMA_GS
Analytical Procedure: GL-RAD-A-013 REV# 27
Analytical Batch: 1747859

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 22

Preparation Batch: 1747620

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

GEL Sample ID#	Client Sample Identification
445991001	B3H265
445991002	B3H268
445991003	B3H273
445991004	B3H276
445991005	B3H279
445991006	B3H282
445991007	B3H285
445991008	B3H294
445991009	B3H2B2
445991010	B3H2B5
445991011	B3H2B8
445991012	B3H2C1
445991013	B3H2D0
445991014	B3H2D3
1203991173	Method Blank (MB)
1203991174	445991003(B3H273) Sample Duplicate (DUP)
1203991175	Laboratory Control Sample (LCS)

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

Data Summary:

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

Quality Control (QC) Information

RDL Met
Sample did not meet the detection limit due to limited sample volume.

Sample	Analyte	Value
445991002 (B3H268)	Europium-154	Result 0.0133 < MDA 0.207 > RDL 0.1 pCi/g

Qualifier Information

Qualifier	Reason	Analyte	Sample	Client Sample
X	Results are considered a false positive due to high counting uncertainty.	Cesium-137	445991002	B3H268
X	Results are considered a false positive due to interference.	Europium-155	445991004	B3H276
			445991013	B3H2D0

X	Results are considered a false positive due to low abundance.	Europium-152	445991013	B3H2D0
			1203991173	MB for batch 1747859

Product: **I129_SEP_LEPS_GS**
Analytical Method: I129_SEP_LEPS_GS
Analytical Procedure: GL-RAD-A-006 REV# 21
Analytical Batch: 1748214

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

GEL Sample ID#	Client Sample Identification
445991001	B3H265
445991002	B3H268
445991003	B3H273
445991004	B3H276
445991005	B3H279
445991006	B3H282
445991007	B3H285
445991008	B3H294
445991009	B3H2B2
445991010	B3H2B5
445991011	B3H2B8
445991012	B3H2C1
445991013	B3H2D0
445991014	B3H2D3
1203991887	Method Blank (MB)
1203991888	445991003(B3H273) Sample Duplicate (DUP)
1203991889	445991003(B3H273) Matrix Spike (MS)
1203991890	Laboratory Control Sample (LCS)

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

Data Summary:

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

Product: **SRTOT_SEP_PRECIP_GPC: COMMON**
Analytical Method: SRTOT_SEP_PRECIP_GPC
Analytical Procedure: GL-RAD-A-004 REV# 19
Analytical Batch: 1747846

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 22
Preparation Batch: 1747620

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

GEL Sample ID#	Client Sample Identification
445991001	B3H265
445991002	B3H268
445991003	B3H273
445991004	B3H276
445991005	B3H279
445991006	B3H282
445991007	B3H285
445991008	B3H294
445991009	B3H2B2
445991010	B3H2B5
445991011	B3H2B8
445991012	B3H2C1
445991013	B3H2D0
445991014	B3H2D3
1203991146	Method Blank (MB)
1203991147	445991005(B3H279) Sample Duplicate (DUP)
1203991148	Laboratory Control Sample (LCS)

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

Data Summary:

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

Quality Control (QC) Information

Duplication Criteria between QC Sample and Duplicate Sample
The QC Sample and the Duplicate, (See Below), did not meet the relative error ratio requirement; however, both sample and duplicate results are less than the minimum detectable concentration.

Sample	Analyte	Value
1203991147 (B3H279DUP)	Total Strontium	RPD 0 N/A RER 2.25* (0-2)

Technical Information

Recounts
Sample 1203991147 (B3H279DUP) was recounted due to a suspected false positive. The recount is reported.

Product: **TRITIUM_DIST_LSC: COMMON**
Analytical Method: TRITIUM_DIST_LSC
Analytical Procedure: GL-RAD-A-002 REV# 22
Analytical Batch: 1748758

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

GEL Sample ID#	Client Sample Identification
445991001	B3H265
445991002	B3H268
445991003	B3H273
445991004	B3H276
445991005	B3H279
445991006	B3H282
445991007	B3H285
445991008	B3H294
445991009	B3H2B2
445991010	B3H2B5
445991011	B3H2B8
445991012	B3H2C1
445991013	B3H2D0
445991014	B3H2D3
1203993200	Method Blank (MB)
1203993201	445991003(B3H273) Sample Duplicate (DUP)
1203993202	445991003(B3H273) Matrix Spike (MS)
1203993203	Laboratory Control Sample (LCS)

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

Data Summary:

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

Miscellaneous Information

Additional Comments
The matrix spike, 1203993202 (B3H273MS), aliquot was reduced to conserve sample volume.

Product: **C14_LSC: COMMON**
Analytical Method: C14_LSC
Analytical Procedure: GL-RAD-A-003 REV# 16
Analytical Batch: 1748763

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

GEL Sample ID#	Client Sample Identification
445991001	B3H265
445991002	B3H268
445991003	B3H273
445991004	B3H276
445991005	B3H279
445991006	B3H282
445991007	B3H285
445991008	B3H294
445991009	B3H2B2

445991010	B3H2B5
445991011	B3H2B8
445991012	B3H2C1
445991013	B3H2D0
445991014	B3H2D3
1203993219	Method Blank (MB)
1203993220	445991004(B3H276) Sample Duplicate (DUP)
1203993221	445991004(B3H276) Matrix Spike (MS)
1203993222	Laboratory Control Sample (LCS)

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

Data Summary:

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

Miscellaneous Information

Additional Comments
The matrix spike, 1203993221 (B3H276MS), aliquot was reduced to conserve sample volume.

Product: **TC99_SEP_GPC**
Analytical Method: TC99_EIE_LSC
Analytical Procedure: GL-RAD-A-059 REV# 5
Analytical Batch: 1749057

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

GEL Sample ID#	Client Sample Identification
445991001	B3H265
445991002	B3H268
445991003	B3H273
445991004	B3H276
445991005	B3H279
445991006	B3H282
445991007	B3H285
445991008	B3H294
445991009	B3H2B2
445991010	B3H2B5
445991011	B3H2B8
445991012	B3H2C1
445991013	B3H2D0
445991014	B3H2D3
1203993907	Method Blank (MB)
1203993908	445991003(B3H273) Sample Duplicate (DUP)
1203993909	Laboratory Control Sample (LCS)

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

Data Summary:

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

Product: **NI63_LSC**
Analytical Method: NI63_LSC
Analytical Procedure: GL-RAD-A-022 REV# 18
Analytical Batch: 1749644

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 22
Preparation Batch: 1747620

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

GEL Sample ID#	Client Sample Identification
445991001	B3H265
445991002	B3H268
445991003	B3H273
445991004	B3H276
445991005	B3H279
445991006	B3H282
445991007	B3H285
445991008	B3H294
445991009	B3H2B2
445991010	B3H2B5
445991011	B3H2B8
445991012	B3H2C1
445991013	B3H2D0
445991014	B3H2D3
1203995100	Method Blank (MB)
1203995101	445991005(B3H279) Sample Duplicate (DUP)
1203995102	Laboratory Control Sample (LCS)

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

Data Summary:

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

Technical Information

Recounts
Sample 445991010 (B3H2B5) was recounted to verify sample results. Recount is reported.

Certification Statement

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

GEL LABORATORIES LLC

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

Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL445991 GEL Work Order: 445991

The Qualifiers in this report are defined as follows:

B The analyte was detected in the associated method blank >/= MDC or >5% sample activity.

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: Theresa L. Austin **Name: Theresa Austin**

Date: 09 APR 2018 **Title: Group Leader**

Sample Data Summary

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991001	**Date Collected:**	03/13/2018 07:44	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	6.5
Client ID:	B3H265			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1747642	**Method:**	ASTM C 1475-00 Modified	**SOP Ref:**	GL-RAD-A-032
Run Date:	03/27/2018 08:48	**Analyst:**	BXA4	**Instrument:**	1175
Data File:	S0445991001_NP.1A.gcnf	**Aliquot:**	0.109 g	**Count Time:**	240 min
Prep Batch:	1747642	**Prep Method:**	ASTM C 1475-00 Modified	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	03/23/2018 11:45				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13994-20-2	Neptunium-237	U	0.126	pCi/g	+/-0.251	0.252	0.408	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	2060	1960	pCi/g	105	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991001**	**Date Collected:**	**03/13/2018 07:44**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**6.5**
Client ID:	**B3H265**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747643**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 09:08**	**Analyst:**	**BXA4**	**Instrument:**	**1229**
Data File:	**S0445991001_PU.1A.gcnf**	**Aliquot:**	**0.108 g**	**Count Time:**	**240 min**
Prep Batch:	**1747643**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.00	pCi/g	+/-0.183	0.184	0.273	1.00
OER-100-70	Plutonium-239/240	U	0.0727	pCi/g	+/-0.326	0.326	0.637	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	13.8	18.3	pCi/g	75.4	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991001**	**Date Collected:**	**03/13/2018 07:44**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**6.5**
Client ID:	**B3H265**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747644**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 08:25**	**Analyst:**	**BXA4**	**Instrument:**	**1003**
Data File:	**S0445991001_UU.1A.gcnf**	**Aliquot:**	**0.108 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1747644**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234		0.636	pCi/g	+/-0.486	0.496	0.588	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.421	pCi/g	+/-0.442	0.446	0.551	1.00
7440-61-1	Uranium-238		0.711	pCi/g	+/-0.462	0.473	0.374	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	18.3	19.3	pCi/g	94.8	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991001	**Date Collected:**	03/13/2018 07:44	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	6.5
Client ID:	B3H265			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1752254	**Method:**	AMCMISO_EIE_PREC_AEA	**SOP Ref:**	GL-RAD-A-011
Run Date:	04/05/2018 15:42	**Analyst:**	BXA4	**Instrument:**	1065
Data File:	S0445991001_AM.3A.gcnf	**Aliquot:**	0.108 g	**Count Time:**	240 min
Prep Batch:	1752254	**Prep Method:**	DOE EML HASL-300, Am-05	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	04/02/2018 17:48				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.169	pCi/g	+/-0.463	0.464	0.857	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	19.0	19.4	pCi/g	97.9	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991001	**Date Collected:**	03/13/2018 07:44	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	6.5
Client ID:	B3H265			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1747846	**Method:**	SRTOT_SEP_PRECIP_GPC	**SOP Ref:**	GL-RAD-A-004
Run Date:	03/24/2018 14:12	**Analyst:**	KSD1	**Instrument:**	PIC9D
Data File:	S1747846r1.xls	**Aliquot:**	0.325 g	**Count Time:**	60 min
Prep Batch:	1747846	**Prep Method:**	EPA 905.0 Modified/DOE RP5	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	03/21/2018 11:48				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	-0.289	pCi/g	+/-0.515	0.515	1.08	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	3.90	4.30	mg	90.7	(40%-110%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991001**	**Date Collected:**	**03/13/2018 07:44**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**6.5**
Client ID:	**B3H265**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747859**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**03/19/2018 18:37**	**Analyst:**	**MJH1**	**Instrument:**	**GAM19**
Data File:	**G445991001.CNF;1**	**Aliquot:**	**40.071 g**	**Count Time:**	**540 min**
Prep Batch:	**1747859**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/19/2018 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137		0.236	pCi/g	+/-0.0489	0.0548	0.0372	0.100
10198-40-0	Cobalt-60	U	0.0124	pCi/g	+/-0.019	0.0198	0.0365	0.100
14683-23-9	Europium-152	U	0.0303	pCi/g	+/-0.0567	0.0584	0.0907	0.100
15585-10-1	Europium-154	U	-0.0256	pCi/g	+/-0.0608	0.0619	0.105	0.100
14391-16-3	Europium-155	U	0.0512	pCi/g	+/-0.0493	0.0546	0.0834	0.100

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991001	**Date Collected:**	03/13/2018 07:44	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	6.5
Client ID:	B3H265			**Prep Basis:**	"As Received"
Batch ID:	1748214	**Method:**	I129_SEP_LEPS_GS	**SOP Ref:**	GL-RAD-A-006
Run Date:	03/19/2018 11:09	**Analyst:**	BSW1	**Instrument:**	GAM05
Data File:	I445991001.CNF;1	**Aliquot:**	1.77 g	**Count Time:**	120 min
Prep Batch:	1748214	**Prep Method:**	DOE EML HASL-300,I-01 M		
Prep Date:	03/19/2018 08:54				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	0.188	pCi/g	+/-0.308	0.320	0.556	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).
The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991001	**Date Collected:**	03/13/2018 07:44	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	6.5
Client ID:	B3H265			**Prep Basis:**	"As Received"
Batch ID:	1748758	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/23/2018 05:07	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1748758.xls	**Aliquot:**	1.25 g	**Count Time:**	15 min
Prep Batch:	1748758	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-4.32	pCi/g	+/-12.0	12.0	22.5	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).
The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991001	**Date Collected:**	03/13/2018 07:44	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	6.5
Client ID:	B3H265			**Prep Basis:**	"As Received"
Batch ID:	1748763	**Method:**	C14_LSC	**SOP Ref:**	GL-RAD-A-003
Run Date:	03/28/2018 05:36	**Analyst:**	MXH8	**Instrument:**	LSCGOLD
Data File:	C1748763.xls	**Aliquot:**	0.522 g	**Count Time:**	40 min
Prep Batch:	1748763	**Prep Method:**	EPA EERF C-01 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	0.591	pCi/g	+/-2.20	2.20	3.76	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).
The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991001**	**Date Collected:**	**03/13/2018 07:44**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**6.5**
Client ID:	**B3H265**			**Prep Basis:**	**"As Received"**
Batch ID:	**1749057**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**04/03/2018 08:21**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCSILVER**
Data File:	**E1749057.xls**	**Aliquot:**	**1.301 g**	**Count Time:**	**15 min**
Prep Batch:	**1749057**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/29/2018 08:55**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-0.0176	pCi/g	+/-1.82	1.82	3.19	5.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	41600	43600	CPM	95.4	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991001	**Date Collected:**	03/13/2018 07:44	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	6.5
Client ID:	B3H265			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1749644	**Method:**	NI63_LSC	**SOP Ref:**	GL-RAD-A-022
Run Date:	04/05/2018 12:14	**Analyst:**	TXJ1	**Instrument:**	LSCRED
Data File:	N1749644R.xls	**Aliquot:**	0.508 g	**Count Time:**	30 min
Prep Batch:	1749644	**Prep Method:**	DOE RESL Ni-1, Modified	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	04/02/2018 13:14				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
NI-63	Nickel-63	U	2.12	pCi/g	+/-3.91	3.93	6.64	10.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Nickel Carrier	19.1	25.2	mg	75.8	(40%-110%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991001**	**Date Collected:**	**03/13/2018 07:44**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**6.5**

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991002	**Date Collected:**	03/13/2018 08:00	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	2.7
Client ID:	B3H268			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1747642	**Method:**	ASTM C 1475-00 Modified	**SOP Ref:**	GL-RAD-A-032
Run Date:	03/27/2018 08:48	**Analyst:**	BXA4	**Instrument:**	1178
Data File:	S0445991002_NP.1A.gcnf	**Aliquot:**	0.104 g	**Count Time:**	240 min
Prep Batch:	1747642	**Prep Method:**	ASTM C 1475-00 Modified	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	03/23/2018 11:45				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13994-20-2	Neptunium-237	U	-0.0937	pCi/g	+/-0.151	0.151	0.481	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	2120	2060	pCi/g	103	(30%-105%)

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).

The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991002**	**Date Collected:**	**03/13/2018 08:00**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**2.7**
Client ID:	**B3H268**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747643**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/31/2018 11:01**	**Analyst:**	**BXA4**	**Instrument:**	**1091**
Data File:	**S0445991002_PU.2A.gcnf**	**Aliquot:**	**0.109 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1747643**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.0499	pCi/g	+/-0.187	0.188	0.315	1.00
OER-100-70	Plutonium-239/240	U	0.0841	pCi/g	+/-0.231	0.232	0.401	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	14.1	18.1	pCi/g	77.6	(30%-105%)

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).

The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991002**	**Date Collected:**	**03/13/2018 08:00**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**2.7**
Client ID:	**B3H268**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747644**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 08:25**	**Analyst:**	**BXA4**	**Instrument:**	**1007**
Data File:	**S0445991002_UU.1A.gcnf**	**Aliquot:**	**0.109 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1747644**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234	U	0.121	pCi/g	+/-0.263	0.264	0.439	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.369	pCi/g	+/-0.398	0.401	0.452	1.00
7440-61-1	Uranium-238	U	0.201	pCi/g	+/-0.298	0.299	0.435	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	18.2	19.2	pCi/g	95	(30%-105%)

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:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991002	**Date Collected:**	03/13/2018 08:00	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	2.7
Client ID:	B3H268			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1752254	**Method:**	AMCMISO_EIE_PREC_AEA	**SOP Ref:**	GL-RAD-A-011
Run Date:	04/04/2018 09:09	**Analyst:**	BXA4	**Instrument:**	1066
Data File:	S0445991002_AM.2A.gcnf	**Aliquot:**	0.107 g	**Count Time:**	240 min
Prep Batch:	1752254	**Prep Method:**	DOE EML HASL-300, Am-05	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	04/02/2018 17:48				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.0628	pCi/g	+/-0.236	0.236	0.397	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	16.3	19.6	pCi/g	83.1	(30%-105%)

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).

The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991002	**Date Collected:**	03/13/2018 08:00	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	2.7
Client ID:	B3H268			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1747846	**Method:**	SRTOT_SEP_PRECIP_GPC	**SOP Ref:**	GL-RAD-A-004
Run Date:	03/24/2018 14:12	**Analyst:**	KSD1	**Instrument:**	PIC10A
Data File:	S1747846r1.xls	**Aliquot:**	0.364 g	**Count Time:**	60 min
Prep Batch:	1747846	**Prep Method:**	EPA 905.0 Modified/DOE RP5	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	03/21/2018 11:48				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	0.390	pCi/g	+/-0.583	0.592	1.01	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	3.70	4.30	mg	86	(40%-110%)

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).

The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991002	**Date Collected:**	03/13/2018 08:00	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	2.7
Client ID:	B3H268			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1747859	**Method:**	GAMMA_GS	**SOP Ref:**	GL-RAD-A-013
Run Date:	03/19/2018 18:38	**Analyst:**	MJH1	**Instrument:**	GAM21
Data File:	G445991002.CNF;1	**Aliquot:**	22.673 g	**Count Time:**	540 min
Prep Batch:	1747859	**Prep Method:**	DOE HASL 300, 4.5.2.3/Ga-01	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	03/19/2018 00:00				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	X	0.100	pCi/g	+/-0.0835	0.0841	0.0597	0.100
10198-40-0	Cobalt-60	U	-0.00252	pCi/g	+/-0.043	0.043	0.0799	0.100
14683-23-9	Europium-152	U	0.000874	pCi/g	+/-0.0695	0.0695	0.119	0.100
15585-10-1	Europium-154	U	0.0133	pCi/g	+/-0.107	0.107	0.207	0.100
14391-16-3	Europium-155	U	0.0619	pCi/g	+/-0.0675	0.0678	0.0677	0.100

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

The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991002	**Date Collected:**	03/13/2018 08:00	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	2.7
Client ID:	B3H268			**Prep Basis:**	"As Received"
Batch ID:	1748214	**Method:**	I129_SEP_LEPS_GS	**SOP Ref:**	GL-RAD-A-006
Run Date:	03/19/2018 11:10	**Analyst:**	BSW1	**Instrument:**	XRAY1
Data File:	I445991002.CNF;1	**Aliquot:**	1.25 g	**Count Time:**	120 min
Prep Batch:	1748214	**Prep Method:**	DOE EML HASL-300,I-01 M		
Prep Date:	03/19/2018 08:54				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.0115	pCi/g	+/-0.302	0.302	0.551	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.
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).

The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991002	**Date Collected:**	03/13/2018 08:00	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	2.7
Client ID:	B3H268			**Prep Basis:**	"As Received"
Batch ID:	1748758	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/23/2018 05:24	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1748758.xls	**Aliquot:**	1.26 g	**Count Time:**	15 min
Prep Batch:	1748758	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-3.0	pCi/g	+/-12.5	12.5	23.3	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.
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).

The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991002	**Date Collected:**	03/13/2018 08:00	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	2.7
Client ID:	B3H268			**Prep Basis:**	"As Received"
Batch ID:	1748763	**Method:**	C14_LSC	**SOP Ref:**	GL-RAD-A-003
Run Date:	03/28/2018 06:18	**Analyst:**	MXH8	**Instrument:**	LSCGOLD
Data File:	C1748763.xls	**Aliquot:**	0.562 g	**Count Time:**	40 min
Prep Batch:	1748763	**Prep Method:**	EPA EERF C-01 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	0.690	pCi/g	+/-2.03	2.03	3.46	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.
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).

The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991002**	**Date Collected:**	**03/13/2018 08:00**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**2.7**
Client ID:	**B3H268**			**Prep Basis:**	**"As Received"**
Batch ID:	**1749057**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**04/03/2018 08:38**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCSILVER**
Data File:	**E1749057.xls**	**Aliquot:**	**1.234 g**	**Count Time:**	**15 min**
Prep Batch:	**1749057**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/29/2018 08:55**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-1.15	pCi/g	+/-1.91	1.91	3.44	5.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	40900	43600	CPM	93.8	(30%-105%)

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).

The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991002	**Date Collected:**	03/13/2018 08:00	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	2.7
Client ID:	B3H268			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1749644	**Method:**	NI63_LSC	**SOP Ref:**	GL-RAD-A-022
Run Date:	04/05/2018 12:45	**Analyst:**	TXJ1	**Instrument:**	LSCRED
Data File:	N1749644R.xls	**Aliquot:**	0.528 g	**Count Time:**	30 min
Prep Batch:	1749644	**Prep Method:**	DOE RESL Ni-1, Modified	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	04/02/2018 13:14				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
NI-63	Nickel-63	U	4.48	pCi/g	+/-3.54	3.64	5.87	10.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Nickel Carrier	20.8	25.2	mg	82.5	(40%-110%)

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).

The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991002**	**Date Collected:**	**03/13/2018 08:00**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**2.7**

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991003**	**Date Collected:**	**03/13/2018 08:33**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.7**
Client ID:	**B3H273**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747642**	**Method:**	**ASTM C 1475-00 Modified**	**SOP Ref:**	**GL-RAD-A-032**
Run Date:	**03/27/2018 08:48**	**Analyst:**	**BXA4**	**Instrument:**	**1180**
Data File:	**S0445991003_NP.1A.gcnf**	**Aliquot:**	**0.11 g**	**Count Time:**	**240 min**
Prep Batch:	**1747642**	**Prep Method:**	**ASTM C 1475-00 Modified**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:45**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13994-20-2	Neptunium-237	U	0.0177	pCi/g	+/-0.185	0.185	0.387	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	2010	1940	pCi/g	103	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991003**	**Date Collected:**	**03/13/2018 08:33**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.7**
Client ID:	**B3H273**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747643**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 09:08**	**Analyst:**	**BXA4**	**Instrument:**	**1231**
Data File:	**S0445991003_PU.1A.gcnf**	**Aliquot:**	**0.108 g**	**Count Time:**	**240 min**
Prep Batch:	**1747643**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.0478	pCi/g	+/-0.266	0.266	0.509	1.00
OER-100-70	Plutonium-239/240	U	0.00	pCi/g	+/-0.185	0.186	0.276	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	15.5	18.3	pCi/g	84.5	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991003**	**Date Collected:**	**03/13/2018 08:33**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.7**
Client ID:	**B3H273**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747644**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 08:25**	**Analyst:**	**BXA4**	**Instrument:**	**1008**
Data File:	**S0445991003_UU.1A.gcnf**	**Aliquot:**	**0.108 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1747644**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234		0.835	pCi/g	+/-0.517	0.532	0.502	1.00
15117-96-1/13982-7	Uranium-235/236	U	-0.02	pCi/g	+/-0.173	0.173	0.400	1.00
7440-61-1	Uranium-238		0.559	pCi/g	+/-0.423	0.431	0.413	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	15.5	19.3	pCi/g	80.1	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991003**	**Date Collected:**	**03/13/2018 08:33**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.7**
Client ID:	**B3H273**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1752254**	**Method:**	**AMCMISO_EIE_PREC_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**04/04/2018 09:09**	**Analyst:**	**BXA4**	**Instrument:**	**1068**
Data File:	**S0445991003_AM.2A.gcnf**	**Aliquot:**	**0.115 g**	**Count Time:**	**240 min**
Prep Batch:	**1752254**	**Prep Method:**	**DOE EML HASL-300, Am-05**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**04/02/2018 17:48**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.0488	pCi/g	+/-0.183	0.183	0.308	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	17.2	18.2	pCi/g	94.4	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991003	**Date Collected:**	03/13/2018 08:33	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.7
Client ID:	B3H273			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1747846	**Method:**	SRTOT_SEP_PRECIP_GPC	**SOP Ref:**	GL-RAD-A-004
Run Date:	03/24/2018 14:12	**Analyst:**	KSD1	**Instrument:**	PIC10B
Data File:	S1747846r1.xls	**Aliquot:**	0.391 g	**Count Time:**	60 min
Prep Batch:	1747846	**Prep Method:**	EPA 905.0 Modified/DOE RP5	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	03/21/2018 11:48				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	0.410	pCi/g	+/-0.577	0.586	0.992	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	3.60	4.30	mg	83.7	(40%-110%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991003**	**Date Collected:**	**03/13/2018 08:33**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.7**
Client ID:	**B3H273**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747859**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**03/19/2018 18:39**	**Analyst:**	**MJH1**	**Instrument:**	**GAM40**
Data File:	**G445991003.CNF;1**	**Aliquot:**	**150.466 g**	**Count Time:**	**360 min**
Prep Batch:	**1747859**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/19/2018 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137		0.277	pCi/g	+/-0.0312	0.0385	0.0226	0.100
10198-40-0	Cobalt-60	U	0.00446	pCi/g	+/-0.0129	0.0131	0.025	0.100
14683-23-9	Europium-152	U	0.020	pCi/g	+/-0.0296	0.031	0.0577	0.100
15585-10-1	Europium-154	U	0.00686	pCi/g	+/-0.041	0.0411	0.0772	0.100
14391-16-3	Europium-155	U	0.0371	pCi/g	+/-0.0354	0.0393	0.0676	0.100

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:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991003	**Date Collected:**	03/13/2018 08:33	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.7
Client ID:	B3H273			**Prep Basis:**	"As Received"
Batch ID:	1748214	**Method:**	I129_SEP_LEPS_GS	**SOP Ref:**	GL-RAD-A-006
Run Date:	03/19/2018 11:10	**Analyst:**	BSW1	**Instrument:**	XRAY2
Data File:	I445991003.CNF;1	**Aliquot:**	1.35 g	**Count Time:**	120 min
Prep Batch:	1748214	**Prep Method:**	DOE EML HASL-300,I-01 M		
Prep Date:	03/19/2018 08:54				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.0201	pCi/g	+/-0.350	0.350	0.665	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:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991003	**Date Collected:**	03/13/2018 08:33	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.7
Client ID:	B3H273			**Prep Basis:**	"As Received"
Batch ID:	1748758	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/23/2018 05:40	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1748758.xls	**Aliquot:**	1.25 g	**Count Time:**	15 min
Prep Batch:	1748758	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	2.24	pCi/g	+/-13.0	13.1	23.3	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:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991003	**Date Collected:**	03/13/2018 08:33	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.7
Client ID:	B3H273			**Prep Basis:**	"As Received"
Batch ID:	1748763	**Method:**	C14_LSC	**SOP Ref:**	GL-RAD-A-003
Run Date:	03/28/2018 07:00	**Analyst:**	MXH8	**Instrument:**	LSCGOLD
Data File:	C1748763.xls	**Aliquot:**	0.526 g	**Count Time:**	40 min
Prep Batch:	1748763	**Prep Method:**	EPA EERF C-01 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-0.0354	pCi/g	+/-2.17	2.17	3.73	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).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991003**	**Date Collected:**	**03/13/2018 08:33**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.7**
Client ID:	**B3H273**			**Prep Basis:**	**"As Received"**
Batch ID:	**1749057**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**04/03/2018 08:55**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCSILVER**
Data File:	**E1749057.xls**	**Aliquot:**	**1.263 g**	**Count Time:**	**15 min**
Prep Batch:	**1749057**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/29/2018 08:55**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-0.793	pCi/g	+/-1.94	1.94	3.45	5.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	41000	43600	CPM	94	(30%-105%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991003**	**Date Collected:**	**03/13/2018 08:33**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.7**
Client ID:	**B3H273**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1749644**	**Method:**	**NI63_LSC**	**SOP Ref:**	**GL-RAD-A-022**
Run Date:	**04/05/2018 13:17**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCRED**
Data File:	**N1749644R.xls**	**Aliquot:**	**0.512 g**	**Count Time:**	**30 min**
Prep Batch:	**1749644**	**Prep Method:**	**DOE RESL Ni-1, Modified**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**04/02/2018 13:14**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
NI-63	Nickel-63	U	2.62	pCi/g	+/-3.57	3.60	6.03	10.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Nickel Carrier	20.9	25.2	mg	82.9	(40%-110%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991003**	**Date Collected:**	**03/13/2018 08:33**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.7**

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991004	**Date Collected:**	03/13/2018 08:39	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.2
Client ID:	B3H276			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1747642	**Method:**	ASTM C 1475-00 Modified	**SOP Ref:**	GL-RAD-A-032
Run Date:	03/27/2018 08:48	**Analyst:**	BXA4	**Instrument:**	1184
Data File:	S0445991004_NP.1A.gcnf	**Aliquot:**	0.109 g	**Count Time:**	240 min
Prep Batch:	1747642	**Prep Method:**	ASTM C 1475-00 Modified	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	03/23/2018 11:45				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13994-20-2	Neptunium-237	U	-0.0297	pCi/g	+/-0.205	0.205	0.499	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	1980	1960	pCi/g	101	(30%-105%)

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).

The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991004**	**Date Collected:**	**03/13/2018 08:39**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.2**
Client ID:	**B3H276**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747643**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/31/2018 11:01**	**Analyst:**	**BXA4**	**Instrument:**	**1092**
Data File:	**S0445991004_PU.2A.gcnf**	**Aliquot:**	**0.106 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1747643**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.0674	pCi/g	+/-0.189	0.190	0.202	1.00
OER-100-70	Plutonium-239/240	U	0.0512	pCi/g	+/-0.192	0.192	0.323	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	16.5	18.7	pCi/g	88.6	(30%-105%)

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).

The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991004**	**Date Collected:**	**03/13/2018 08:39**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.2**
Client ID:	**B3H276**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747644**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 08:25**	**Analyst:**	**BXA4**	**Instrument:**	**1009**
Data File:	**S0445991004_UU.1A.gcnf**	**Aliquot:**	**0.106 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1747644**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234		0.952	pCi/g	+/-0.513	0.530	0.473	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.294	pCi/g	+/-0.325	0.327	0.221	1.00
7440-61-1	Uranium-238		0.836	pCi/g	+/-0.471	0.484	0.392	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	18.7	19.7	pCi/g	95	(30%-105%)

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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Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991004**	**Date Collected:**	**03/13/2018 08:39**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.2**
Client ID:	**B3H276**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1752254**	**Method:**	**AMCMISO_EIE_PREC_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**04/05/2018 15:42**	**Analyst:**	**BXA4**	**Instrument:**	**1066**
Data File:	**S0445991004_AM.3A.gcnf**	**Aliquot:**	**0.111 g**	**Count Time:**	**240 min**
Prep Batch:	**1752254**	**Prep Method:**	**DOE EML HASL-300, Am-05**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**04/02/2018 17:48**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.117	pCi/g	+/-0.229	0.230	0.318	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	18.9	18.9	pCi/g	100	(30%-105%)

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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Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991004**	**Date Collected:**	**03/13/2018 08:39**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.2**
Client ID:	**B3H276**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747846**	**Method:**	**SRTOT_SEP_PRECIP_GPC**	**SOP Ref:**	**GL-RAD-A-004**
Run Date:	**03/24/2018 14:12**	**Analyst:**	**KSD1**	**Instrument:**	**PIC10C**
Data File:	**S1747846r1.xls**	**Aliquot:**	**0.302 g**	**Count Time:**	**60 min**
Prep Batch:	**1747846**	**Prep Method:**	**EPA 905.0 Modified/DOE RP5**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/21/2018 11:48**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	0.343	pCi/g	+/-0.612	0.618	1.08	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	3.80	4.30	mg	88.4	(40%-110%)

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:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991004**	**Date Collected:**	**03/13/2018 08:39**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.2**
Client ID:	**B3H276**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747859**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**03/19/2018 18:39**	**Analyst:**	**MJH1**	**Instrument:**	**GAM41**
Data File:	**G445991004.CNF;1**	**Aliquot:**	**157.416 g**	**Count Time:**	**360 min**
Prep Batch:	**1747859**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/19/2018 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137		1.92	pCi/g	+/-0.0717	0.184	0.0273	0.100
10198-40-0	Cobalt-60	U	-0.0158	pCi/g	+/-0.0162	0.0177	0.0261	0.100
14683-23-9	Europium-152	U	0.0026	pCi/g	+/-0.0373	0.0373	0.069	0.100
15585-10-1	Europium-154	U	0.0239	pCi/g	+/-0.0564	0.0575	0.104	0.100
14391-16-3	Europium-155	X	0.0781	pCi/g	+/-0.0653	0.0658	0.0576	0.100

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.
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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Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991004	**Date Collected:**	03/13/2018 08:39	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.2
Client ID:	B3H276			**Prep Basis:**	"As Received"
Batch ID:	1748214	**Method:**	I129_SEP_LEPS_GS	**SOP Ref:**	GL-RAD-A-006
Run Date:	03/19/2018 11:11	**Analyst:**	BSW1	**Instrument:**	XRAY4
Data File:	I445991004.CNF;1	**Aliquot:**	1.08 g	**Count Time:**	120 min
Prep Batch:	1748214	**Prep Method:**	DOE EML HASL-300,I-01 M		
Prep Date:	03/19/2018 08:54				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.171	pCi/g	+/-0.374	0.383	0.633	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.
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).

The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991004	**Date Collected:**	03/13/2018 08:39	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.2
Client ID:	B3H276			**Prep Basis:**	"As Received"
Batch ID:	1748758	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/23/2018 05:56	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1748758.xls	**Aliquot:**	1.28 g	**Count Time:**	15 min
Prep Batch:	1748758	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-6.43	pCi/g	+/-11.9	11.9	22.7	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.
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).

The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991004	**Date Collected:**	03/13/2018 08:39	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.2
Client ID:	B3H276			**Prep Basis:**	"As Received"
Batch ID:	1748763	**Method:**	C14_LSC	**SOP Ref:**	GL-RAD-A-003
Run Date:	03/28/2018 07:42	**Analyst:**	MXH8	**Instrument:**	LSCGOLD
Data File:	C1748763.xls	**Aliquot:**	0.539 g	**Count Time:**	40 min
Prep Batch:	1748763	**Prep Method:**	EPA EERF C-01 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-0.739	pCi/g	+/-2.10	2.10	3.64	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.
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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Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991004**	**Date Collected:**	**03/13/2018 08:39**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.2**
Client ID:	**B3H276**			**Prep Basis:**	**"As Received"**
Batch ID:	**1749057**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**04/03/2018 09:11**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCSILVER**
Data File:	**E1749057.xls**	**Aliquot:**	**1.216 g**	**Count Time:**	**15 min**
Prep Batch:	**1749057**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/29/2018 08:55**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-0.716	pCi/g	+/-1.93	1.93	3.44	5.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	42200	43600	CPM	96.6	(30%-105%)

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:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991004	**Date Collected:**	03/13/2018 08:39	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.2
Client ID:	B3H276			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1749644	**Method:**	NI63_LSC	**SOP Ref:**	GL-RAD-A-022
Run Date:	04/05/2018 13:49	**Analyst:**	TXJ1	**Instrument:**	LSCRED
Data File:	N1749644R.xls	**Aliquot:**	0.546 g	**Count Time:**	30 min
Prep Batch:	1749644	**Prep Method:**	DOE RESL Ni-1, Modified	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	04/02/2018 13:14				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
NI-63	Nickel-63	U	1.67	pCi/g	+/-3.35	3.37	5.71	10.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Nickel Carrier	20.7	25.2	mg	82.1	(40%-110%)

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).

The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991004**	**Date Collected:**	**03/13/2018 08:39**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.2**

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991005**	**Date Collected:**	**03/13/2018 08:33**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.2**
Client ID:	**B3H279**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747642**	**Method:**	**ASTM C 1475-00 Modified**	**SOP Ref:**	**GL-RAD-A-032**
Run Date:	**03/27/2018 08:48**	**Analyst:**	**BXA4**	**Instrument:**	**1185**
Data File:	**S0445991005_NP.1A.gcnf**	**Aliquot:**	**0.106 g**	**Count Time:**	**240 min**
Prep Batch:	**1747642**	**Prep Method:**	**ASTM C 1475-00 Modified**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:45**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13994-20-2	Neptunium-237	U	-0.0746	pCi/g	+/-0.255	0.255	0.631	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	2110	2020	pCi/g	105	(30%-105%)

Comments:

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TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991005**	**Date Collected:**	**03/13/2018 08:33**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.2**
Client ID:	**B3H279**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747643**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 09:08**	**Analyst:**	**BXA4**	**Instrument:**	**1233**
Data File:	**S0445991005_PU.1A.gcnf**	**Aliquot:**	**0.107 g**	**Count Time:**	**240 min**
Prep Batch:	**1747643**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	-0.0446	pCi/g	+/-0.197	0.198	0.514	1.00
OER-100-70	Plutonium-239/240	U	0.0966	pCi/g	+/-0.330	0.330	0.612	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	15.7	18.5	pCi/g	85	(30%-105%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991005**	**Date Collected:**	**03/13/2018 08:33**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.2**
Client ID:	**B3H279**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747644**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 08:25**	**Analyst:**	**BXA4**	**Instrument:**	**1010**
Data File:	**S0445991005_UU.1A.gcnf**	**Aliquot:**	**0.107 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1747644**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234		0.594	pCi/g	+/-0.415	0.424	0.443	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.216	pCi/g	+/-0.284	0.285	0.216	1.00
7440-61-1	Uranium-238		0.859	pCi/g	+/-0.458	0.471	0.279	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	18.7	19.5	pCi/g	95.8	(30%-105%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991005	**Date Collected:**	03/13/2018 08:33	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.2
Client ID:	B3H279			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1752254	**Method:**	AMCMISO_EIE_PREC_AEA	**SOP Ref:**	GL-RAD-A-011
Run Date:	04/05/2018 15:42	**Analyst:**	BXA4	**Instrument:**	1067
Data File:	S0445991005_AM.3A.gcnf	**Aliquot:**	0.102 g	**Count Time:**	240 min
Prep Batch:	1752254	**Prep Method:**	DOE EML HASL-300, Am-05	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	04/02/2018 17:48				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.144	pCi/g	+/-0.284	0.285	0.481	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	21.9	20.6	pCi/g	107 *	(30%-105%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991005	**Date Collected:**	03/13/2018 08:33	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.2
Client ID:	B3H279			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1747846	**Method:**	SRTOT_SEP_PRECIP_GPC	**SOP Ref:**	GL-RAD-A-004
Run Date:	03/24/2018 14:12	**Analyst:**	KSD1	**Instrument:**	PIC10D
Data File:	S1747846r1.xls	**Aliquot:**	0.395 g	**Count Time:**	60 min
Prep Batch:	1747846	**Prep Method:**	EPA 905.0 Modified/DOE RP5	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	03/21/2018 11:48				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	0.892	pCi/g	+/-0.858	0.888	1.42	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	3.30	4.30	mg	76.7	(40%-110%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991005**	**Date Collected:**	**03/13/2018 08:33**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.2**
Client ID:	**B3H279**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747859**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**03/20/2018 08:30**	**Analyst:**	**MJH1**	**Instrument:**	**GAM44**
Data File:	**G445991005.CNF;1**	**Aliquot:**	**152.561 g**	**Count Time:**	**240 min**
Prep Batch:	**1747859**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/19/2018 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137		0.543	pCi/g	+/-0.0513	0.0676	0.0285	0.100
10198-40-0	Cobalt-60	U	-0.000681	pCi/g	+/-0.0203	0.0203	0.0365	0.100
14683-23-9	Europium-152	U	-0.00534	pCi/g	+/-0.0453	0.0454	0.0768	0.100
15585-10-1	Europium-154	U	0.0241	pCi/g	+/-0.058	0.0591	0.111	0.100
14391-16-3	Europium-155	U	0.0242	pCi/g	+/-0.0498	0.051	0.0869	0.100

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991005	**Date Collected:**	03/13/2018 08:33	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.2
Client ID:	B3H279			**Prep Basis:**	"As Received"
Batch ID:	1748214	**Method:**	I129_SEP_LEPS_GS	**SOP Ref:**	GL-RAD-A-006
Run Date:	03/19/2018 11:11	**Analyst:**	BSW1	**Instrument:**	XRAY5
Data File:	I445991005.CNF;1	**Aliquot:**	1.3 g	**Count Time:**	120 min
Prep Batch:	1748214	**Prep Method:**	DOE EML HASL-300,I-01 M		
Prep Date:	03/19/2018 08:54				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.108	pCi/g	+/-0.228	0.234	0.385	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:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991005	**Date Collected:**	03/13/2018 08:33	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.2
Client ID:	B3H279			**Prep Basis:**	"As Received"
Batch ID:	1748758	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/23/2018 06:13	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1748758.xls	**Aliquot:**	1.29 g	**Count Time:**	15 min
Prep Batch:	1748758	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-0.786	pCi/g	+/-12.2	12.2	22.2	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).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991005	**Date Collected:**	03/13/2018 08:33	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.2
Client ID:	B3H279			**Prep Basis:**	"As Received"
Batch ID:	1748763	**Method:**	C14_LSC	**SOP Ref:**	GL-RAD-A-003
Run Date:	03/28/2018 08:24	**Analyst:**	MXH8	**Instrument:**	LSCGOLD
Data File:	C1748763.xls	**Aliquot:**	0.535 g	**Count Time:**	40 min
Prep Batch:	1748763	**Prep Method:**	EPA EERF C-01 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-0.311	pCi/g	+/-2.13	2.13	3.67	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).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991005**	**Date Collected:**	**03/13/2018 08:33**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.2**
Client ID:	**B3H279**			**Prep Basis:**	**"As Received"**
Batch ID:	**1749057**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**04/03/2018 09:28**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCSILVER**
Data File:	**E1749057.xls**	**Aliquot:**	**1.281 g**	**Count Time:**	**15 min**
Prep Batch:	**1749057**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/29/2018 08:55**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-1.86	pCi/g	+/-1.87	1.87	3.43	5.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	40800	43600	CPM	93.4	(30%-105%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991005	**Date Collected:**	03/13/2018 08:33	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.2
Client ID:	B3H279			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1749644	**Method:**	NI63_LSC	**SOP Ref:**	GL-RAD-A-022
Run Date:	04/05/2018 14:20	**Analyst:**	TXJ1	**Instrument:**	LSCRED
Data File:	N1749644R.xls	**Aliquot:**	0.536 g	**Count Time:**	30 min
Prep Batch:	1749644	**Prep Method:**	DOE RESL Ni-1, Modified	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	04/02/2018 13:14				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
NI-63	Nickel-63	U	3.29	pCi/g	+/-3.47	3.52	5.82	10.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Nickel Carrier	20.7	25.2	mg	82.1	(40%-110%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991005**	**Date Collected:**	**03/13/2018 08:33**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.2**

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991006**	**Date Collected:**	**03/13/2018 08:46**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**6.2**
Client ID:	**B3H282**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747642**	**Method:**	**ASTM C 1475-00 Modified**	**SOP Ref:**	**GL-RAD-A-032**
Run Date:	**03/27/2018 08:48**	**Analyst:**	**BXA4**	**Instrument:**	**1186**
Data File:	**S0445991006_NP.1A.gcnf**	**Aliquot:**	**0.106 g**	**Count Time:**	**240 min**
Prep Batch:	**1747642**	**Prep Method:**	**ASTM C 1475-00 Modified**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:45**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13994-20-2	Neptunium-237	U	0.040	pCi/g	+/-0.222	0.223	0.426	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	2050	2020	pCi/g	102	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991006**	**Date Collected:**	**03/13/2018 08:46**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**6.2**
Client ID:	**B3H282**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747643**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 09:08**	**Analyst:**	**BXA4**	**Instrument:**	**1234**
Data File:	**S0445991006_PU.1A.gcnf**	**Aliquot:**	**0.108 g**	**Count Time:**	**240 min**
Prep Batch:	**1747643**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.114	pCi/g	+/-0.314	0.314	0.544	1.00
OER-100-70	Plutonium-239/240	U	-0.0392	pCi/g	+/-0.270	0.271	0.658	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	14.3	18.3	pCi/g	78.2	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991006**	**Date Collected:**	**03/13/2018 08:46**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**6.2**
Client ID:	**B3H282**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747644**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 08:25**	**Analyst:**	**BXA4**	**Instrument:**	**1011**
Data File:	**S0445991006_UU.1A.gcnf**	**Aliquot:**	**0.108 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1747644**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234	U	0.519	pCi/g	+/-0.431	0.438	0.546	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.271	pCi/g	+/-0.343	0.345	0.426	1.00
7440-61-1	Uranium-238		0.516	pCi/g	+/-0.390	0.397	0.380	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	17.5	19.3	pCi/g	90.5	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991006**	**Date Collected:**	**03/13/2018 08:46**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**6.2**
Client ID:	**B3H282**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1752254**	**Method:**	**AMCMISO_EIE_PREC_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**04/04/2018 09:09**	**Analyst:**	**BXA4**	**Instrument:**	**1071**
Data File:	**S0445991006_AM.3A.gcnf**	**Aliquot:**	**0.106 g**	**Count Time:**	**240 min**
Prep Batch:	**1752254**	**Prep Method:**	**DOE EML HASL-300, Am-05**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**04/02/2018 17:48**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	-0.0145	pCi/g	+/-0.125	0.126	0.290	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	18.3	19.8	pCi/g	92.3	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991006	**Date Collected:**	03/13/2018 08:46	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	6.2
Client ID:	B3H282			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1747846	**Method:**	SRTOT_SEP_PRECIP_GPC	**SOP Ref:**	GL-RAD-A-004
Run Date:	03/24/2018 14:19	**Analyst:**	KSD1	**Instrument:**	PIC11A
Data File:	S1747846r1.xls	**Aliquot:**	0.388 g	**Count Time:**	60 min
Prep Batch:	1747846	**Prep Method:**	EPA 905.0 Modified/DOE RP5	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	03/21/2018 11:48				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	0.626	pCi/g	+/-0.531	0.554	0.844	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	3.70	4.30	mg	86	(40%-110%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991006**	**Date Collected:**	**03/13/2018 08:46**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**6.2**
Client ID:	**B3H282**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747859**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**03/20/2018 08:33**	**Analyst:**	**MJH1**	**Instrument:**	**GAM20**
Data File:	**G445991006.CNF;1**	**Aliquot:**	**166.278 g**	**Count Time:**	**240 min**
Prep Batch:	**1747859**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/19/2018 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137		0.0538	pCi/g	+/-0.0221	0.0225	0.0248	0.100
10198-40-0	Cobalt-60	U	0.00692	pCi/g	+/-0.0128	0.0132	0.0241	0.100
14683-23-9	Europium-152	U	-0.00657	pCi/g	+/-0.0316	0.0317	0.0585	0.100
15585-10-1	Europium-154	U	0.0289	pCi/g	+/-0.0461	0.0479	0.0896	0.100
14391-16-3	Europium-155	U	0.0386	pCi/g	+/-0.0369	0.0409	0.069	0.100

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991006	**Date Collected:**	03/13/2018 08:46	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	6.2
Client ID:	B3H282			**Prep Basis:**	"As Received"
Batch ID:	1748214	**Method:**	I129_SEP_LEPS_GS	**SOP Ref:**	GL-RAD-A-006
Run Date:	03/19/2018 11:11	**Analyst:**	BSW1	**Instrument:**	XRAY6
Data File:	I445991006.CNF;1	**Aliquot:**	1.27 g	**Count Time:**	120 min
Prep Batch:	1748214	**Prep Method:**	DOE EML HASL-300,I-01 M		
Prep Date:	03/19/2018 08:54				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.295	pCi/g	+/-0.262	0.295	0.146	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).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991006	**Date Collected:**	03/13/2018 08:46	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	6.2
Client ID:	B3H282			**Prep Basis:**	"As Received"
Batch ID:	1748758	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/23/2018 06:29	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1748758.xls	**Aliquot:**	1.27 g	**Count Time:**	15 min
Prep Batch:	1748758	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-5.85	pCi/g	+/-12.2	12.2	23.1	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).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991006	**Date Collected:**	03/13/2018 08:46	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	6.2
Client ID:	B3H282			**Prep Basis:**	"As Received"
Batch ID:	1748763	**Method:**	C14_LSC	**SOP Ref:**	GL-RAD-A-003
Run Date:	03/28/2018 09:06	**Analyst:**	MXH8	**Instrument:**	LSCGOLD
Data File:	C1748763.xls	**Aliquot:**	0.515 g	**Count Time:**	40 min
Prep Batch:	1748763	**Prep Method:**	EPA EERF C-01 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	0.581	pCi/g	+/-2.24	2.24	3.82	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).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991006**	**Date Collected:**	**03/13/2018 08:46**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**6.2**
Client ID:	**B3H282**			**Prep Basis:**	**"As Received"**
Batch ID:	**1749057**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**04/03/2018 09:45**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCSILVER**
Data File:	**E1749057.xls**	**Aliquot:**	**1.213 g**	**Count Time:**	**15 min**
Prep Batch:	**1749057**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/29/2018 08:55**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-1.42	pCi/g	+/-1.96	1.96	3.55	5.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	41300	43600	CPM	94.6	(30%-105%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991006	**Date Collected:**	03/13/2018 08:46	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	6.2
Client ID:	B3H282			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1749644	**Method:**	NI63_LSC	**SOP Ref:**	GL-RAD-A-022
Run Date:	04/05/2018 14:52	**Analyst:**	TXJ1	**Instrument:**	LSCRED
Data File:	N1749644R.xls	**Aliquot:**	0.544 g	**Count Time:**	30 min
Prep Batch:	1749644	**Prep Method:**	DOE RESL Ni-1, Modified	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	04/02/2018 13:14				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
NI-63	Nickel-63	U	4.12	pCi/g	+/-3.36	3.44	5.58	10.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Nickel Carrier	21.3	25.2	mg	84.5	(40%-110%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991006**	**Date Collected:**	**03/13/2018 08:46**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**6.2**

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991007**	**Date Collected:**	**03/13/2018 08:54**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.4**
Client ID:	**B3H285**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747642**	**Method:**	**ASTM C 1475-00 Modified**	**SOP Ref:**	**GL-RAD-A-032**
Run Date:	**03/27/2018 08:48**	**Analyst:**	**BXA4**	**Instrument:**	**1188**
Data File:	**S0445991007_NP.1A.gcnf**	**Aliquot:**	**0.104 g**	**Count Time:**	**240 min**
Prep Batch:	**1747642**	**Prep Method:**	**ASTM C 1475-00 Modified**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:45**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13994-20-2	Neptunium-237	U	0.0887	pCi/g	+/-0.244	0.244	0.423	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	2080	2060	pCi/g	101	(30%-105%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991007**	**Date Collected:**	**03/13/2018 08:54**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.4**
Client ID:	**B3H285**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747643**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/31/2018 11:01**	**Analyst:**	**BXA4**	**Instrument:**	**1093**
Data File:	**S0445991007_PU.2A.gcnf**	**Aliquot:**	**0.107 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1747643**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.00	pCi/g	+/-0.129	0.129	0.192	1.00
OER-100-70	Plutonium-239/240	U	0.0971	pCi/g	+/-0.223	0.223	0.354	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	15.1	18.5	pCi/g	81.5	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991007**	**Date Collected:**	**03/13/2018 08:54**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.4**
Client ID:	**B3H285**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747644**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 08:25**	**Analyst:**	**BXA4**	**Instrument:**	**1012**
Data File:	**S0445991007_UU.1A.gcnf**	**Aliquot:**	**0.107 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1747644**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234		0.703	pCi/g	+/-0.469	0.480	0.519	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.00	pCi/g	+/-0.152	0.152	0.226	1.00
7440-61-1	Uranium-238		1.13	pCi/g	+/-0.537	0.557	0.338	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	19.3	19.5	pCi/g	98.9	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991007	**Date Collected:**	03/13/2018 08:54	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.4
Client ID:	B3H285			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1752254	**Method:**	AMCMISO_EIE_PREC_AEA	**SOP Ref:**	GL-RAD-A-011
Run Date:	04/04/2018 09:09	**Analyst:**	BXA4	**Instrument:**	1072
Data File:	S0445991007_AM.3A.gcnf	**Aliquot:**	0.101 g	**Count Time:**	240 min
Prep Batch:	1752254	**Prep Method:**	DOE EML HASL-300, Am-05	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	04/02/2018 17:48				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.069	pCi/g	+/-0.194	0.194	0.207	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	20.3	20.8	pCi/g	97.8	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991007**	**Date Collected:**	**03/13/2018 08:54**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.4**
Client ID:	**B3H285**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747846**	**Method:**	**SRTOT_SEP_PRECIP_GPC**	**SOP Ref:**	**GL-RAD-A-004**
Run Date:	**03/24/2018 14:19**	**Analyst:**	**KSD1**	**Instrument:**	**PIC11B**
Data File:	**S1747846r1.xls**	**Aliquot:**	**0.33 g**	**Count Time:**	**60 min**
Prep Batch:	**1747846**	**Prep Method:**	**EPA 905.0 Modified/DOE RP5**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/21/2018 11:48**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	0.740	pCi/g	+/-1.01	1.02	1.72	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	2.50	4.30	mg	58.1	(40%-110%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991007**	**Date Collected:**	**03/13/2018 08:54**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.4**
Client ID:	**B3H285**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747859**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**03/20/2018 08:37**	**Analyst:**	**MJH1**	**Instrument:**	**GAM29**
Data File:	**G445991007.CNF;1**	**Aliquot:**	**161.711 g**	**Count Time:**	**240 min**
Prep Batch:	**1747859**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/19/2018 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137		0.175	pCi/g	+/-0.0333	0.0364	0.0228	0.100
10198-40-0	Cobalt-60	U	0.012	pCi/g	+/-0.0138	0.0149	0.0286	0.100
14683-23-9	Europium-152	U	0.00947	pCi/g	+/-0.0331	0.0334	0.0621	0.100
15585-10-1	Europium-154	U	0.0172	pCi/g	+/-0.0437	0.0444	0.074	0.100
14391-16-3	Europium-155	U	0.0419	pCi/g	+/-0.0379	0.0425	0.0733	0.100

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991007	**Date Collected:**	03/13/2018 08:54	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.4
Client ID:	B3H285			**Prep Basis:**	"As Received"
Batch ID:	1748214	**Method:**	I129_SEP_LEPS_GS	**SOP Ref:**	GL-RAD-A-006
Run Date:	03/19/2018 11:13	**Analyst:**	BSW1	**Instrument:**	GAM21
Data File:	I445991007.CNF;1	**Aliquot:**	1.58 g	**Count Time:**	120 min
Prep Batch:	1748214	**Prep Method:**	DOE EML HASL-300,I-01 M		
Prep Date:	03/19/2018 08:54				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	0.177	pCi/g	+/-0.217	0.232	0.446	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).
The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991007	**Date Collected:**	03/13/2018 08:54	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.4
Client ID:	B3H285			**Prep Basis:**	"As Received"
Batch ID:	1748758	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/23/2018 06:45	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1748758.xls	**Aliquot:**	1.25 g	**Count Time:**	15 min
Prep Batch:	1748758	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	2.79	pCi/g	+/-13.0	13.0	23.2	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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Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991007	**Date Collected:**	03/13/2018 08:54	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.4
Client ID:	B3H285			**Prep Basis:**	"As Received"
Batch ID:	1748763	**Method:**	C14_LSC	**SOP Ref:**	GL-RAD-A-003
Run Date:	03/28/2018 09:48	**Analyst:**	MXH8	**Instrument:**	LSCGOLD
Data File:	C1748763.xls	**Aliquot:**	0.573 g	**Count Time:**	40 min
Prep Batch:	1748763	**Prep Method:**	EPA EERF C-01 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-0.445	pCi/g	+/-1.99	1.99	3.43	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).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991007**	**Date Collected:**	**03/13/2018 08:54**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.4**
Client ID:	**B3H285**			**Prep Basis:**	**"As Received"**
Batch ID:	**1749057**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**04/03/2018 10:01**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCSILVER**
Data File:	**E1749057.xls**	**Aliquot:**	**1.226 g**	**Count Time:**	**15 min**
Prep Batch:	**1749057**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/29/2018 08:55**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-1.12	pCi/g	+/-2.01	2.01	3.61	5.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	40300	43600	CPM	92.3	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991007	**Date Collected:**	03/13/2018 08:54	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.4
Client ID:	B3H285			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1749644	**Method:**	NI63_LSC	**SOP Ref:**	GL-RAD-A-022
Run Date:	04/05/2018 15:23	**Analyst:**	TXJ1	**Instrument:**	LSCRED
Data File:	N1749644R.xls	**Aliquot:**	0.522 g	**Count Time:**	30 min
Prep Batch:	1749644	**Prep Method:**	DOE RESL Ni-1, Modified	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	04/02/2018 13:14				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
NI-63	Nickel-63	U	2.74	pCi/g	+/-3.48	3.52	5.87	10.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Nickel Carrier	21.5	25.2	mg	85.3	(40%-110%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991007**	**Date Collected:**	**03/13/2018 08:54**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.4**

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991008**	**Date Collected:**	**03/13/2018 10:04**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.2**
Client ID:	**B3H294**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747642**	**Method:**	**ASTM C 1475-00 Modified**	**SOP Ref:**	**GL-RAD-A-032**
Run Date:	**03/27/2018 08:48**	**Analyst:**	**BXA4**	**Instrument:**	**1189**
Data File:	**S0445991008_NP.1A.gcnf**	**Aliquot:**	**0.106 g**	**Count Time:**	**240 min**
Prep Batch:	**1747642**	**Prep Method:**	**ASTM C 1475-00 Modified**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:45**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13994-20-2	Neptunium-237	U	0.0588	pCi/g	+/-0.221	0.221	0.371	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	2090	2020	pCi/g	104	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991008**	**Date Collected:**	**03/13/2018 10:04**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.2**
Client ID:	**B3H294**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747643**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 09:08**	**Analyst:**	**BXA4**	**Instrument:**	**1236**
Data File:	**S0445991008_PU.1A.gcnf**	**Aliquot:**	**0.106 g**	**Count Time:**	**240 min**
Prep Batch:	**1747643**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.161	pCi/g	+/-0.317	0.318	0.440	1.00
OER-100-70	Plutonium-239/240	U	0.0257	pCi/g	+/-0.268	0.269	0.560	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	14.3	18.7	pCi/g	76.7	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991008**	**Date Collected:**	**03/13/2018 10:04**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.2**
Client ID:	**B3H294**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747644**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 08:25**	**Analyst:**	**BXA4**	**Instrument:**	**1013**
Data File:	**S0445991008_UU.1A.gcnf**	**Aliquot:**	**0.106 g**	**Count Time:**	**240 min**
Prep Batch:	**1747644**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234		0.713	pCi/g	+/-0.482	0.493	0.565	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.132	pCi/g	+/-0.259	0.259	0.358	1.00
7440-61-1	Uranium-238	U	0.384	pCi/g	+/-0.387	0.391	0.541	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	16.6	19.7	pCi/g	84.3	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991008	**Date Collected:**	03/13/2018 10:04	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.2
Client ID:	B3H294			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1752254	**Method:**	AMCMISO_EIE_PREC_AEA	**SOP Ref:**	GL-RAD-A-011
Run Date:	04/04/2018 09:09	**Analyst:**	BXA4	**Instrument:**	1073
Data File:	S0445991008_AM.2A.gcnf	**Aliquot:**	0.114 g	**Count Time:**	240 min
Prep Batch:	1752254	**Prep Method:**	DOE EML HASL-300, Am-05	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	04/02/2018 17:48				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	-0.0134	pCi/g	+/-0.115	0.115	0.267	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	17.5	18.4	pCi/g	94.9	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991008	**Date Collected:**	03/13/2018 10:04	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.2
Client ID:	B3H294			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1747846	**Method:**	SRTOT_SEP_PRECIP_GPC	**SOP Ref:**	GL-RAD-A-004
Run Date:	03/24/2018 14:19	**Analyst:**	KSD1	**Instrument:**	PIC11C
Data File:	S1747846r1.xls	**Aliquot:**	0.387 g	**Count Time:**	60 min
Prep Batch:	1747846	**Prep Method:**	EPA 905.0 Modified/DOE RP5	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	03/21/2018 11:48				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	-0.501	pCi/g	+/-0.447	0.447	1.03	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	3.30	4.30	mg	76.7	(40%-110%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991008**	**Date Collected:**	**03/13/2018 10:04**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.2**
Client ID:	**B3H294**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747859**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**03/20/2018 08:44**	**Analyst:**	**MJH1**	**Instrument:**	**GAM30**
Data File:	**G445991008.CNF;1**	**Aliquot:**	**136.244 g**	**Count Time:**	**240 min**
Prep Batch:	**1747859**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/19/2018 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137		0.348	pCi/g	+/-0.0442	0.0535	0.0268	0.100
10198-40-0	Cobalt-60	U	0.00272	pCi/g	+/-0.0142	0.0143	0.0279	0.100
14683-23-9	Europium-152	U	0.0207	pCi/g	+/-0.0714	0.072	0.0662	0.100
15585-10-1	Europium-154	U	0.038	pCi/g	+/-0.0452	0.0484	0.0879	0.100
14391-16-3	Europium-155	U	0.0659	pCi/g	+/-0.0718	0.072	0.0702	0.100

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991008	**Date Collected:**	03/13/2018 10:04	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.2
Client ID:	B3H294			**Prep Basis:**	"As Received"
Batch ID:	1748214	**Method:**	I129_SEP_LEPS_GS	**SOP Ref:**	GL-RAD-A-006
Run Date:	03/19/2018 14:25	**Analyst:**	BSW1	**Instrument:**	GAM05
Data File:	I445991008.CNF;1	**Aliquot:**	1.9 g	**Count Time:**	120 min
Prep Batch:	1748214	**Prep Method:**	DOE EML HASL-300,I-01 M		
Prep Date:	03/19/2018 08:54				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.206	pCi/g	+/-0.320	0.334	0.492	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).
The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991008	**Date Collected:**	03/13/2018 10:04	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.2
Client ID:	B3H294			**Prep Basis:**	"As Received"
Batch ID:	1748758	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/23/2018 07:01	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1748758.xls	**Aliquot:**	1.25 g	**Count Time:**	15 min
Prep Batch:	1748758	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-3.34	pCi/g	+/-11.7	11.7	21.8	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).
The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991008	**Date Collected:**	03/13/2018 10:04	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.2
Client ID:	B3H294			**Prep Basis:**	"As Received"
Batch ID:	1748763	**Method:**	C14_LSC	**SOP Ref:**	GL-RAD-A-003
Run Date:	03/28/2018 10:30	**Analyst:**	MXH8	**Instrument:**	LSCGOLD
Data File:	C1748763.xls	**Aliquot:**	0.508 g	**Count Time:**	40 min
Prep Batch:	1748763	**Prep Method:**	EPA EERF C-01 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	0.946	pCi/g	+/-2.27	2.27	3.86	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).
The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991008**	**Date Collected:**	**03/13/2018 10:04**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.2**
Client ID:	**B3H294**			**Prep Basis:**	**"As Received"**
Batch ID:	**1749057**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**04/03/2018 10:18**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCSILVER**
Data File:	**E1749057.xls**	**Aliquot:**	**1.224 g**	**Count Time:**	**15 min**
Prep Batch:	**1749057**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/29/2018 08:55**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-1.49	pCi/g	+/-1.91	1.91	3.46	5.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	41200	43600	CPM	94.5	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991008	**Date Collected:**	03/13/2018 10:04	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.2
Client ID:	B3H294			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1749644	**Method:**	NI63_LSC	**SOP Ref:**	GL-RAD-A-022
Run Date:	04/05/2018 15:55	**Analyst:**	TXJ1	**Instrument:**	LSCRED
Data File:	N1749644R.xls	**Aliquot:**	0.527 g	**Count Time:**	30 min
Prep Batch:	1749644	**Prep Method:**	DOE RESL Ni-1, Modified	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	04/02/2018 13:14				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
NI-63	Nickel-63	U	2.06	pCi/g	+/-3.77	3.79	6.41	10.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Nickel Carrier	19.1	25.2	mg	75.8	(40%-110%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991008**	**Date Collected:**	**03/13/2018 10:04**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.2**

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991009**	**Date Collected:**	**03/13/2018 10:57**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.3**
Client ID:	**B3H2B2**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747642**	**Method:**	**ASTM C 1475-00 Modified**	**SOP Ref:**	**GL-RAD-A-032**
Run Date:	**03/27/2018 08:48**	**Analyst:**	**BXA4**	**Instrument:**	**1192**
Data File:	**S0445991009_NP.1A.gcnf**	**Aliquot:**	**0.11 g**	**Count Time:**	**240 min**
Prep Batch:	**1747642**	**Prep Method:**	**ASTM C 1475-00 Modified**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:45**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13994-20-2	Neptunium-237	U	-0.0709	pCi/g	+/-0.164	0.165	0.487	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	2010	1940	pCi/g	103	(30%-105%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991009**	**Date Collected:**	**03/13/2018 10:57**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.3**
Client ID:	**B3H2B2**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747643**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 09:08**	**Analyst:**	**BXA4**	**Instrument:**	**1239**
Data File:	**S0445991009_PU.1A.gcnf**	**Aliquot:**	**0.103 g**	**Count Time:**	**240 min**
Prep Batch:	**1747643**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.00	pCi/g	+/-0.176	0.176	0.262	1.00
OER-100-70	Plutonium-239/240	U	0.133	pCi/g	+/-0.305	0.305	0.483	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	16.7	19.2	pCi/g	86.7	(30%-105%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991009**	**Date Collected:**	**03/13/2018 10:57**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.3**
Client ID:	**B3H2B2**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747644**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 08:25**	**Analyst:**	**BXA4**	**Instrument:**	**1014**
Data File:	**S0445991009_UU.1A.gcnf**	**Aliquot:**	**0.103 g**	**Count Time:**	**240 min**
Prep Batch:	**1747644**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234		0.991	pCi/g	+/-0.561	0.579	0.545	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.165	pCi/g	+/-0.283	0.284	0.248	1.00
7440-61-1	Uranium-238		0.436	pCi/g	+/-0.374	0.379	0.370	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	17.0	20.3	pCi/g	83.9	(30%-105%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991009	**Date Collected:**	03/13/2018 10:57	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.3
Client ID:	B3H2B2			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1752254	**Method:**	AMCMISO_EIE_PREC_AEA	**SOP Ref:**	GL-RAD-A-011
Run Date:	04/04/2018 09:09	**Analyst:**	BXA4	**Instrument:**	1074
Data File:	S0445991009_AM.2A.gcnf	**Aliquot:**	0.106 g	**Count Time:**	240 min
Prep Batch:	1752254	**Prep Method:**	DOE EML HASL-300, Am-05	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	04/02/2018 17:48				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.0322	pCi/g	+/-0.179	0.179	0.343	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	21.0	19.8	pCi/g	106 *	(30%-105%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991009	**Date Collected:**	03/13/2018 10:57	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.3
Client ID:	B3H2B2			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1747846	**Method:**	SRTOT_SEP_PRECIP_GPC	**SOP Ref:**	GL-RAD-A-004
Run Date:	03/24/2018 14:19	**Analyst:**	KSD1	**Instrument:**	PIC11D
Data File:	S1747846r1.xls	**Aliquot:**	0.371 g	**Count Time:**	60 min
Prep Batch:	1747846	**Prep Method:**	EPA 905.0 Modified/DOE RP5	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	03/21/2018 11:48				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	0.920	pCi/g	+/-0.875	0.906	1.44	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	2.90	4.30	mg	67.4	(40%-110%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991009**	**Date Collected:**	**03/13/2018 10:57**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.3**
Client ID:	**B3H2B2**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747859**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**03/20/2018 09:04**	**Analyst:**	**MJH1**	**Instrument:**	**GAM04**
Data File:	**G445991009.CNF;1**	**Aliquot:**	**149.534 g**	**Count Time:**	**240 min**
Prep Batch:	**1747859**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/19/2018 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137		0.156	pCi/g	+/-0.0412	0.0432	0.0325	0.100
10198-40-0	Cobalt-60	U	0.0175	pCi/g	+/-0.035	0.0359	0.0374	0.100
14683-23-9	Europium-152	U	0.0413	pCi/g	+/-0.045	0.0489	0.0895	0.100
15585-10-1	Europium-154	U	0.0631	pCi/g	+/-0.0598	0.0665	0.111	0.100
14391-16-3	Europium-155	U	0.0587	pCi/g	+/-0.054	0.0603	0.103	0.100

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991009	**Date Collected:**	03/13/2018 10:57	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.3
Client ID:	B3H2B2			**Prep Basis:**	"As Received"
Batch ID:	1748214	**Method:**	I129_SEP_LEPS_GS	**SOP Ref:**	GL-RAD-A-006
Run Date:	03/19/2018 14:25	**Analyst:**	BSW1	**Instrument:**	GAM21
Data File:	I445991009.CNF;1	**Aliquot:**	1.43 g	**Count Time:**	120 min
Prep Batch:	1748214	**Prep Method:**	DOE EML HASL-300,I-01 M		
Prep Date:	03/19/2018 08:54				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.0955	pCi/g	+/-0.281	0.284	0.482	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).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991009	**Date Collected:**	03/13/2018 10:57	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.3
Client ID:	B3H2B2			**Prep Basis:**	"As Received"
Batch ID:	1748758	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/23/2018 07:18	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1748758.xls	**Aliquot:**	1.25 g	**Count Time:**	15 min
Prep Batch:	1748758	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	5.79	pCi/g	+/-13.4	13.4	23.4	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).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991009	**Date Collected:**	03/13/2018 10:57	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.3
Client ID:	B3H2B2			**Prep Basis:**	"As Received"
Batch ID:	1748763	**Method:**	C14_LSC	**SOP Ref:**	GL-RAD-A-003
Run Date:	03/28/2018 11:12	**Analyst:**	MXH8	**Instrument:**	LSCGOLD
Data File:	C1748763.xls	**Aliquot:**	0.518 g	**Count Time:**	40 min
Prep Batch:	1748763	**Prep Method:**	EPA EERF C-01 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	1.00	pCi/g	+/-2.23	2.23	3.79	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).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991009**	**Date Collected:**	**03/13/2018 10:57**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.3**
Client ID:	**B3H2B2**			**Prep Basis:**	**"As Received"**
Batch ID:	**1749057**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**04/03/2018 10:35**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCSILVER**
Data File:	**E1749057.xls**	**Aliquot:**	**1.257 g**	**Count Time:**	**15 min**
Prep Batch:	**1749057**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/29/2018 08:55**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-1.52	pCi/g	+/-1.89	1.89	3.42	5.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	40500	43600	CPM	92.8	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991009	**Date Collected:**	03/13/2018 10:57	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.3
Client ID:	B3H2B2			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1749644	**Method:**	NI63_LSC	**SOP Ref:**	GL-RAD-A-022
Run Date:	04/05/2018 16:27	**Analyst:**	TXJ1	**Instrument:**	LSCRED
Data File:	N1749644R.xls	**Aliquot:**	0.584 g	**Count Time:**	30 min
Prep Batch:	1749644	**Prep Method:**	DOE RESL Ni-1, Modified	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	04/02/2018 13:14				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
NI-63	Nickel-63	U	1.96	pCi/g	+/-3.07	3.09	5.21	10.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Nickel Carrier	21.3	25.2	mg	84.5	(40%-110%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991009**	**Date Collected:**	**03/13/2018 10:57**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.3**

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991010**	**Date Collected:**	**03/13/2018 11:02**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.8**
Client ID:	**B3H2B5**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747642**	**Method:**	**ASTM C 1475-00 Modified**	**SOP Ref:**	**GL-RAD-A-032**
Run Date:	**03/27/2018 08:48**	**Analyst:**	**BXA4**	**Instrument:**	**1193**
Data File:	**S0445991010_NP.1A.gcnf**	**Aliquot:**	**0.109 g**	**Count Time:**	**240 min**
Prep Batch:	**1747642**	**Prep Method:**	**ASTM C 1475-00 Modified**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:45**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13994-20-2	Neptunium-237	U	-0.0304	pCi/g	+/-0.134	0.134	0.350	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	2050	1960	pCi/g	104	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991010**	**Date Collected:**	**03/13/2018 11:02**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.8**
Client ID:	**B3H2B5**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747643**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 09:08**	**Analyst:**	**BXA4**	**Instrument:**	**1240**
Data File:	**S0445991010_PU.1A.gcnf**	**Aliquot:**	**0.109 g**	**Count Time:**	**240 min**
Prep Batch:	**1747643**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.145	pCi/g	+/-0.248	0.248	0.217	1.00
OER-100-70	Plutonium-239/240	U	-0.0347	pCi/g	+/-0.153	0.154	0.400	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	17.2	18.1	pCi/g	95	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991010**	**Date Collected:**	**03/13/2018 11:02**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.8**
Client ID:	**B3H2B5**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747644**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 08:25**	**Analyst:**	**BXA4**	**Instrument:**	**1015**
Data File:	**S0445991010_UU.1A.gcnf**	**Aliquot:**	**0.109 g**	**Count Time:**	**240 min**
Prep Batch:	**1747644**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234		0.857	pCi/g	+/-0.516	0.531	0.534	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.215	pCi/g	+/-0.310	0.312	0.374	1.00
7440-61-1	Uranium-238		0.820	pCi/g	+/-0.464	0.477	0.189	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	16.1	19.2	pCi/g	84.3	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991010	**Date Collected:**	03/13/2018 11:02	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.8
Client ID:	B3H2B5			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1752254	**Method:**	AMCMISO_EIE_PREC_AEA	**SOP Ref:**	GL-RAD-A-011
Run Date:	04/04/2018 09:09	**Analyst:**	BXA4	**Instrument:**	1075
Data File:	S0445991010_AM.2A.gcnf	**Aliquot:**	0.107 g	**Count Time:**	240 min
Prep Batch:	1752254	**Prep Method:**	DOE EML HASL-300, Am-05	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	04/02/2018 17:48				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	-0.0113	pCi/g	+/-0.170	0.170	0.397	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	19.2	19.6	pCi/g	98.1	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991010	**Date Collected:**	03/13/2018 11:02	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.8
Client ID:	B3H2B5			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1747846	**Method:**	SRTOT_SEP_PRECIP_GPC	**SOP Ref:**	GL-RAD-A-004
Run Date:	03/24/2018 14:19	**Analyst:**	KSD1	**Instrument:**	PIC12A
Data File:	S1747846r1.xls	**Aliquot:**	0.348 g	**Count Time:**	60 min
Prep Batch:	1747846	**Prep Method:**	EPA 905.0 Modified/DOE RP5	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	03/21/2018 11:48				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	0.329	pCi/g	+/-0.750	0.755	1.34	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	3.40	4.30	mg	79.1	(40%-110%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991010	**Date Collected:**	03/13/2018 11:02	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.8
Client ID:	B3H2B5			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1747859	**Method:**	GAMMA_GS	**SOP Ref:**	GL-RAD-A-013
Run Date:	03/20/2018 09:05	**Analyst:**	MJH1	**Instrument:**	GAM05
Data File:	G445991010.CNF;1	**Aliquot:**	157.872 g	**Count Time:**	240 min
Prep Batch:	1747859	**Prep Method:**	DOE HASL 300, 4.5.2.3/Ga-01	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	03/19/2018 00:00				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137		0.308	pCi/g	+/-0.0372	0.0495	0.0237	0.100
10198-40-0	Cobalt-60	U	-0.00609	pCi/g	+/-0.0132	0.0135	0.0237	0.100
14683-23-9	Europium-152	U	-0.00788	pCi/g	+/-0.0322	0.0324	0.0558	0.100
15585-10-1	Europium-154	U	0.0184	pCi/g	+/-0.0406	0.0414	0.0796	0.100
14391-16-3	Europium-155	U	0.0455	pCi/g	+/-0.0564	0.0566	0.0506	0.100

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991010	**Date Collected:**	03/13/2018 11:02	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.8
Client ID:	B3H2B5			**Prep Basis:**	"As Received"
Batch ID:	1748214	**Method:**	I129_SEP_LEPS_GS	**SOP Ref:**	GL-RAD-A-006
Run Date:	03/19/2018 14:26	**Analyst:**	BSW1	**Instrument:**	XRAY1
Data File:	I445991010.CNF;1	**Aliquot:**	1.2 g	**Count Time:**	120 min
Prep Batch:	1748214	**Prep Method:**	DOE EML HASL-300,I-01 M		
Prep Date:	03/19/2018 08:54				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	0.0726	pCi/g	+/-0.346	0.347	0.647	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).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991010	**Date Collected:**	03/13/2018 11:02	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.8
Client ID:	B3H2B5			**Prep Basis:**	"As Received"
Batch ID:	1748758	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/23/2018 07:34	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1748758.xls	**Aliquot:**	1.26 g	**Count Time:**	15 min
Prep Batch:	1748758	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	6.60	pCi/g	+/-13.5	13.6	23.5	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).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991010	**Date Collected:**	03/13/2018 11:02	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.8
Client ID:	B3H2B5			**Prep Basis:**	"As Received"
Batch ID:	1748763	**Method:**	C14_LSC	**SOP Ref:**	GL-RAD-A-003
Run Date:	03/28/2018 11:54	**Analyst:**	MXH8	**Instrument:**	LSCGOLD
Data File:	C1748763.xls	**Aliquot:**	0.547 g	**Count Time:**	40 min
Prep Batch:	1748763	**Prep Method:**	EPA EERF C-01 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	2.26	pCi/g	+/-2.15	2.16	3.60	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).
The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991010**	**Date Collected:**	**03/13/2018 11:02**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.8**
Client ID:	**B3H2B5**			**Prep Basis:**	**"As Received"**
Batch ID:	**1749057**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**04/03/2018 10:52**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCSILVER**
Data File:	**E1749057.xls**	**Aliquot:**	**1.249 g**	**Count Time:**	**15 min**
Prep Batch:	**1749057**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/29/2018 08:55**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-1.0	pCi/g	+/-1.96	1.96	3.51	5.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	41000	43600	CPM	93.9	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991010**	**Date Collected:**	**03/13/2018 11:02**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.8**
Client ID:	**B3H2B5**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1749644**	**Method:**	**NI63_LSC**	**SOP Ref:**	**GL-RAD-A-022**
Run Date:	**04/06/2018 14:55**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCRED**
Data File:	**N1749644R.xls**	**Aliquot:**	**0.553 g**	**Count Time:**	**30 min**
Prep Batch:	**1749644**	**Prep Method:**	**DOE RESL Ni-1, Modified**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**04/02/2018 13:14**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
NI-63	Nickel-63	U	-1.65	pCi/g	+/-3.46	3.46	6.07	10.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Nickel Carrier	21.1	25.2	mg	83.7	(40%-110%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991010**	**Date Collected:**	**03/13/2018 11:02**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.8**

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991011**	**Date Collected:**	**03/13/2018 11:09**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.9**
Client ID:	**B3H2B8**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747642**	**Method:**	**ASTM C 1475-00 Modified**	**SOP Ref:**	**GL-RAD-A-032**
Run Date:	**03/27/2018 08:48**	**Analyst:**	**BXA4**	**Instrument:**	**1194**
Data File:	**S0445991011_NP.1A.gcnf**	**Aliquot:**	**0.103 g**	**Count Time:**	**240 min**
Prep Batch:	**1747642**	**Prep Method:**	**ASTM C 1475-00 Modified**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:45**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13994-20-2	Neptunium-237	U	0.0449	pCi/g	+/-0.249	0.250	0.478	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	1970	2080	pCi/g	95.1	(30%-105%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991011**	**Date Collected:**	**03/13/2018 11:09**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.9**
Client ID:	**B3H2B8**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747643**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 09:08**	**Analyst:**	**BXA4**	**Instrument:**	**1242**
Data File:	**S0445991011_PU.1A.gcnf**	**Aliquot:**	**0.107 g**	**Count Time:**	**240 min**
Prep Batch:	**1747643**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.0781	pCi/g	+/-0.220	0.220	0.234	1.00
OER-100-70	Plutonium-239/240	U	0.215	pCi/g	+/-0.310	0.312	0.374	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	15.7	18.5	pCi/g	84.9	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991011**	**Date Collected:**	**03/13/2018 11:09**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.9**
Client ID:	**B3H2B8**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747644**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 08:25**	**Analyst:**	**BXA4**	**Instrument:**	**1016**
Data File:	**S0445991011_UU.1A.gcnf**	**Aliquot:**	**0.107 g**	**Count Time:**	**240 min**
Prep Batch:	**1747644**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234		0.833	pCi/g	+/-0.473	0.486	0.503	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.181	pCi/g	+/-0.261	0.262	0.315	1.00
7440-61-1	Uranium-238		0.387	pCi/g	+/-0.317	0.320	0.325	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	19.1	19.5	pCi/g	97.8	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991011**	**Date Collected:**	**03/13/2018 11:09**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.9**
Client ID:	**B3H2B8**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1752254**	**Method:**	**AMCMISO_EIE_PREC_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**04/04/2018 09:10**	**Analyst:**	**BXA4**	**Instrument:**	**1089**
Data File:	**S0445991011_AM.2A.gcnf**	**Aliquot:**	**0.114 g**	**Count Time:**	**240 min**
Prep Batch:	**1752254**	**Prep Method:**	**DOE EML HASL-300, Am-05**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**04/02/2018 17:48**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.127	pCi/g	+/-0.252	0.252	0.409	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	16.6	18.4	pCi/g	90.1	(30%-105%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991011	**Date Collected:**	03/13/2018 11:09	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.9
Client ID:	B3H2B8			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1747846	**Method:**	SRTOT_SEP_PRECIP_GPC	**SOP Ref:**	GL-RAD-A-004
Run Date:	03/24/2018 14:19	**Analyst:**	KSD1	**Instrument:**	PIC12B
Data File:	S1747846r1.xls	**Aliquot:**	0.361 g	**Count Time:**	60 min
Prep Batch:	1747846	**Prep Method:**	EPA 905.0 Modified/DOE RP5	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	03/21/2018 11:48				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	-0.211	pCi/g	+/-0.566	0.567	1.14	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	3.50	4.30	mg	81.4	(40%-110%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991011**	**Date Collected:**	**03/13/2018 11:09**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.9**
Client ID:	**B3H2B8**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747859**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**03/20/2018 09:05**	**Analyst:**	**MJH1**	**Instrument:**	**GAM06**
Data File:	**G445991011.CNF;1**	**Aliquot:**	**157.989 g**	**Count Time:**	**240 min**
Prep Batch:	**1747859**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/19/2018 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137		0.0336	pCi/g	+/-0.0253	0.0254	0.0266	0.100
10198-40-0	Cobalt-60	U	-0.00439	pCi/g	+/-0.0183	0.0184	0.029	0.100
14683-23-9	Europium-152	U	0.0286	pCi/g	+/-0.0374	0.0397	0.075	0.100
15585-10-1	Europium-154	U	0.0209	pCi/g	+/-0.0571	0.0579	0.109	0.100
14391-16-3	Europium-155	U	0.0538	pCi/g	+/-0.066	0.0662	0.0675	0.100

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991011	**Date Collected:**	03/13/2018 11:09	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.9
Client ID:	B3H2B8			**Prep Basis:**	"As Received"
Batch ID:	1748214	**Method:**	I129_SEP_LEPS_GS	**SOP Ref:**	GL-RAD-A-006
Run Date:	03/19/2018 14:26	**Analyst:**	BSW1	**Instrument:**	XRAY2
Data File:	I445991011.CNF;1	**Aliquot:**	1.36 g	**Count Time:**	120 min
Prep Batch:	1748214	**Prep Method:**	DOE EML HASL-300,I-01 M		
Prep Date:	03/19/2018 08:54				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.118	pCi/g	+/-0.322	0.326	0.586	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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Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991011	**Date Collected:**	03/13/2018 11:09	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.9
Client ID:	B3H2B8			**Prep Basis:**	"As Received"
Batch ID:	1748758	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/23/2018 07:50	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1748758.xls	**Aliquot:**	1.25 g	**Count Time:**	15 min
Prep Batch:	1748758	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	7.99	pCi/g	+/-13.4	13.5	23.1	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).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991011	**Date Collected:**	03/13/2018 11:09	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	5.9
Client ID:	B3H2B8			**Prep Basis:**	"As Received"
Batch ID:	1748763	**Method:**	C14_LSC	**SOP Ref:**	GL-RAD-A-003
Run Date:	03/28/2018 12:35	**Analyst:**	MXH8	**Instrument:**	LSCGOLD
Data File:	C1748763.xls	**Aliquot:**	0.511 g	**Count Time:**	40 min
Prep Batch:	1748763	**Prep Method:**	EPA EERF C-01 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	0.644	pCi/g	+/-2.25	2.25	3.84	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).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991011**	**Date Collected:**	**03/13/2018 11:09**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.9**
Client ID:	**B3H2B8**			**Prep Basis:**	**"As Received"**
Batch ID:	**1749057**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**04/03/2018 11:08**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCSILVER**
Data File:	**E1749057.xls**	**Aliquot:**	**1.26 g**	**Count Time:**	**15 min**
Prep Batch:	**1749057**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/29/2018 08:55**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	1.04	pCi/g	+/-1.95	1.95	3.32	5.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	41200	43600	CPM	94.3	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991011**	**Date Collected:**	**03/13/2018 11:09**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.9**
Client ID:	**B3H2B8**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1749644**	**Method:**	**NI63_LSC**	**SOP Ref:**	**GL-RAD-A-022**
Run Date:	**04/05/2018 17:30**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCRED**
Data File:	**N1749644R.xls**	**Aliquot:**	**0.633 g**	**Count Time:**	**30 min**
Prep Batch:	**1749644**	**Prep Method:**	**DOE RESL Ni-1, Modified**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**04/02/2018 13:14**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
NI-63	Nickel-63	U	1.99	pCi/g	+/-3.12	3.14	5.29	10.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Nickel Carrier	19.3	25.2	mg	76.6	(40%-110%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991011**	**Date Collected:**	**03/13/2018 11:09**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**5.9**

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991012	**Date Collected:**	03/13/2018 11:16	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	7.2
Client ID:	B3H2C1			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1747642	**Method:**	ASTM C 1475-00 Modified	**SOP Ref:**	GL-RAD-A-032
Run Date:	03/27/2018 08:48	**Analyst:**	BXA4	**Instrument:**	1195
Data File:	S0445991012_NP.1A.gcnf	**Aliquot:**	0.107 g	**Count Time:**	240 min
Prep Batch:	1747642	**Prep Method:**	ASTM C 1475-00 Modified	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	03/23/2018 11:45				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13994-20-2	Neptunium-237	U	-0.015	pCi/g	+/-0.129	0.129	0.299	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	2110	2000	pCi/g	105	(30%-105%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991012**	**Date Collected:**	**03/13/2018 11:16**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**7.2**
Client ID:	**B3H2C1**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747643**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 09:08**	**Analyst:**	**BXA4**	**Instrument:**	**1243**
Data File:	**S0445991012_PU.1A.gcnf**	**Aliquot:**	**0.101 g**	**Count Time:**	**240 min**
Prep Batch:	**1747643**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	-0.0404	pCi/g	+/-0.179	0.179	0.466	1.00
OER-100-70	Plutonium-239/240	U	-0.0202	pCi/g	+/-0.174	0.175	0.403	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	17.4	19.6	pCi/g	88.9	(30%-105%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991012**	**Date Collected:**	**03/13/2018 11:16**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**7.2**
Client ID:	**B3H2C1**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747644**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 08:25**	**Analyst:**	**BXA4**	**Instrument:**	**1017**
Data File:	**S0445991012_UU.1A.gcnf**	**Aliquot:**	**0.101 g**	**Count Time:**	**240 min**
Prep Batch:	**1747644**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234		0.599	pCi/g	+/-0.455	0.464	0.522	1.00
15117-96-1/13982-7	Uranium-235/236	U	-0.0197	pCi/g	+/-0.170	0.170	0.393	1.00
7440-61-1	Uranium-238	U	0.366	pCi/g	+/-0.348	0.351	0.367	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	19.5	20.7	pCi/g	94.4	(30%-105%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991012**	**Date Collected:**	**03/13/2018 11:16**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**7.2**
Client ID:	**B3H2C1**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1752254**	**Method:**	**AMCMISO_EIE_PREC_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**04/04/2018 09:10**	**Analyst:**	**BXA4**	**Instrument:**	**1090**
Data File:	**S0445991012_AM.3A.gcnf**	**Aliquot:**	**0.109 g**	**Count Time:**	**240 min**
Prep Batch:	**1752254**	**Prep Method:**	**DOE EML HASL-300, Am-05**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**04/02/2018 17:48**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	-0.0254	pCi/g	+/-0.113	0.113	0.294	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	19.3	19.2	pCi/g	100	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991012	**Date Collected:**	03/13/2018 11:16	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	7.2
Client ID:	B3H2C1			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1747846	**Method:**	SRTOT_SEP_PRECIP_GPC	**SOP Ref:**	GL-RAD-A-004
Run Date:	03/24/2018 14:19	**Analyst:**	KSD1	**Instrument:**	PIC12C
Data File:	S1747846r1.xls	**Aliquot:**	0.372 g	**Count Time:**	60 min
Prep Batch:	1747846	**Prep Method:**	EPA 905.0 Modified/DOE RP5	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	03/21/2018 11:48				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	0.797	pCi/g	+/-0.802	0.828	1.33	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	3.20	4.30	mg	74.4	(40%-110%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991012**	**Date Collected:**	**03/13/2018 11:16**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**7.2**
Client ID:	**B3H2C1**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747859**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**03/20/2018 09:07**	**Analyst:**	**MJH1**	**Instrument:**	**GAM07**
Data File:	**G445991012.CNF;1**	**Aliquot:**	**161.835 g**	**Count Time:**	**240 min**
Prep Batch:	**1747859**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/19/2018 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137		0.108	pCi/g	+/-0.0271	0.0285	0.0271	0.100
10198-40-0	Cobalt-60	U	0.00105	pCi/g	+/-0.0155	0.0155	0.029	0.100
14683-23-9	Europium-152	U	0.0351	pCi/g	+/-0.0367	0.0401	0.0728	0.100
15585-10-1	Europium-154	U	0.0253	pCi/g	+/-0.0489	0.0502	0.0945	0.100
14391-16-3	Europium-155	U	0.0198	pCi/g	+/-0.0389	0.040	0.0737	0.100

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:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991012	**Date Collected:**	03/13/2018 11:16	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	7.2
Client ID:	B3H2C1			**Prep Basis:**	"As Received"
Batch ID:	1748214	**Method:**	I129_SEP_LEPS_GS	**SOP Ref:**	GL-RAD-A-006
Run Date:	03/19/2018 14:27	**Analyst:**	BSW1	**Instrument:**	XRAY4
Data File:	I445991012.CNF;1	**Aliquot:**	1.1 g	**Count Time:**	120 min
Prep Batch:	1748214	**Prep Method:**	DOE EML HASL-300,I-01 M		
Prep Date:	03/19/2018 08:54				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.0642	pCi/g	+/-0.368	0.370	0.671	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:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991012	**Date Collected:**	03/13/2018 11:16	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	7.2
Client ID:	B3H2C1			**Prep Basis:**	"As Received"
Batch ID:	1748758	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/23/2018 08:07	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1748758.xls	**Aliquot:**	1.25 g	**Count Time:**	15 min
Prep Batch:	1748758	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-6.61	pCi/g	+/-11.9	11.9	22.7	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).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991012	**Date Collected:**	03/13/2018 11:16	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	7.2
Client ID:	B3H2C1			**Prep Basis:**	"As Received"
Batch ID:	1748763	**Method:**	C14_LSC	**SOP Ref:**	GL-RAD-A-003
Run Date:	03/28/2018 13:18	**Analyst:**	MXH8	**Instrument:**	LSCGOLD
Data File:	C1748763.xls	**Aliquot:**	0.539 g	**Count Time:**	40 min
Prep Batch:	1748763	**Prep Method:**	EPA EERF C-01 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	1.01	pCi/g	+/-2.15	2.15	3.65	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).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991012**	**Date Collected:**	**03/13/2018 11:16**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**7.2**
Client ID:	**B3H2C1**			**Prep Basis:**	**"As Received"**
Batch ID:	**1749057**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**04/03/2018 11:25**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCSILVER**
Data File:	**E1749057.xls**	**Aliquot:**	**1.29 g**	**Count Time:**	**15 min**
Prep Batch:	**1749057**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/29/2018 08:55**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-0.684	pCi/g	+/-1.88	1.88	3.35	5.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	40600	43600	CPM	93	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991012**	**Date Collected:**	**03/13/2018 11:16**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**7.2**
Client ID:	**B3H2C1**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1749644**	**Method:**	**NI63_LSC**	**SOP Ref:**	**GL-RAD-A-022**
Run Date:	**04/05/2018 18:02**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCRED**
Data File:	**N1749644R.xls**	**Aliquot:**	**0.514 g**	**Count Time:**	**30 min**
Prep Batch:	**1749644**	**Prep Method:**	**DOE RESL Ni-1, Modified**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**04/02/2018 13:14**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
NI-63	Nickel-63	U	4.74	pCi/g	+/-3.85	3.95	6.40	10.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Nickel Carrier	19.6	25.2	mg	77.8	(40%-110%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991012**	**Date Collected:**	**03/13/2018 11:16**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**7.2**

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991013	**Date Collected:**	03/13/2018 13:26	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	3.3
Client ID:	B3H2D0			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1747642	**Method:**	ASTM C 1475-00 Modified	**SOP Ref:**	GL-RAD-A-032
Run Date:	03/27/2018 08:48	**Analyst:**	BXA4	**Instrument:**	1196
Data File:	S0445991013_NP.1A.gcnf	**Aliquot:**	0.109 g	**Count Time:**	240 min
Prep Batch:	1747642	**Prep Method:**	ASTM C 1475-00 Modified	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	03/23/2018 11:45				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13994-20-2	Neptunium-237	U	-0.0373	pCi/g	+/-0.165	0.165	0.431	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	1990	1960	pCi/g	101	(30%-105%)

Comments:

B The analyte was detected in the associated method blank >/= MDC or >5% sample activity.
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X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

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Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991013**	**Date Collected:**	**03/13/2018 13:26**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**3.3**
Client ID:	**B3H2D0**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747643**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 09:08**	**Analyst:**	**BXA4**	**Instrument:**	**1244**
Data File:	**S0445991013_PU.1A.gcnf**	**Aliquot:**	**0.102 g**	**Count Time:**	**240 min**
Prep Batch:	**1747643**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	-0.0464	pCi/g	+/-0.205	0.206	0.536	1.00
OER-100-70	Plutonium-239/240	U	0.317	pCi/g	+/-0.433	0.436	0.591	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	15.6	19.4	pCi/g	80.6	(30%-105%)

Comments:

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

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Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991013**	**Date Collected:**	**03/13/2018 13:26**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**3.3**
Client ID:	**B3H2D0**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747644**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 08:25**	**Analyst:**	**BXA4**	**Instrument:**	**1018**
Data File:	**S0445991013_UU.1A.gcnf**	**Aliquot:**	**0.102 g**	**Count Time:**	**240 min**
Prep Batch:	**1747644**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234		0.723	pCi/g	+/-0.487	0.498	0.486	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.0846	pCi/g	+/-0.238	0.238	0.254	1.00
7440-61-1	Uranium-238		0.394	pCi/g	+/-0.358	0.362	0.328	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	17.8	20.5	pCi/g	87	(30%-105%)

Comments:

B The analyte was detected in the associated method blank >/= MDC or >5% sample activity.
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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:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991013	**Date Collected:**	03/13/2018 13:26	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	3.3
Client ID:	B3H2D0			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1752254	**Method:**	AMCMISO_EIE_PREC_AEA	**SOP Ref:**	GL-RAD-A-011
Run Date:	04/04/2018 09:10	**Analyst:**	BXA4	**Instrument:**	1091
Data File:	S0445991013_AM.2A.gcnf	**Aliquot:**	0.1 g	**Count Time:**	240 min
Prep Batch:	1752254	**Prep Method:**	DOE EML HASL-300, Am-05	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	04/02/2018 17:48				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.0852	pCi/g	+/-0.196	0.196	0.310	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	21.1	21.0	pCi/g	101	(30%-105%)

Comments:

B The analyte was detected in the associated method blank >/= MDC or >5% sample activity.
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).

The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991013	**Date Collected:**	03/13/2018 13:26	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	3.3
Client ID:	B3H2D0			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1747846	**Method:**	SRTOT_SEP_PRECIP_GPC	**SOP Ref:**	GL-RAD-A-004
Run Date:	03/24/2018 14:19	**Analyst:**	KSD1	**Instrument:**	PIC12D
Data File:	S1747846r1.xls	**Aliquot:**	0.401 g	**Count Time:**	60 min
Prep Batch:	1747846	**Prep Method:**	EPA 905.0 Modified/DOE RP5	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	03/21/2018 11:48				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	0.156	pCi/g	+/-0.535	0.536	0.983	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	3.40	4.30	mg	79.1	(40%-110%)

Comments:

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991013	**Date Collected:**	03/13/2018 13:26	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	3.3
Client ID:	B3H2D0			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1747859	**Method:**	GAMMA_GS	**SOP Ref:**	GL-RAD-A-013
Run Date:	03/20/2018 09:08	**Analyst:**	MJH1	**Instrument:**	GAM11
Data File:	G445991013.CNF;1	**Aliquot:**	164.374 g	**Count Time:**	240 min
Prep Batch:	1747859	**Prep Method:**	DOE HASL 300, 4.5.2.3/Ga-01	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	03/19/2018 00:00				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137		0.140	pCi/g	+/-0.0379	0.0396	0.0229	0.100
10198-40-0	Cobalt-60	U	-0.00339	pCi/g	+/-0.0125	0.0126	0.0229	0.100
14683-23-9	Europium-152	BX	0.0812	pCi/g	+/-0.0583	0.0693	0.0601	0.100
15585-10-1	Europium-154	U	-0.0267	pCi/g	+/-0.0393	0.0411	0.0684	0.100
14391-16-3	Europium-155	X	0.0736	pCi/g	+/-0.0606	0.061	0.0603	0.100

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

B The analyte was detected in the associated method blank >/= MDC or >5% sample activity.
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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991013	**Date Collected:**	03/13/2018 13:26	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	3.3
Client ID:	B3H2D0			**Prep Basis:**	"As Received"
Batch ID:	1748214	**Method:**	I129_SEP_LEPS_GS	**SOP Ref:**	GL-RAD-A-006
Run Date:	03/19/2018 14:27	**Analyst:**	BSW1	**Instrument:**	XRAY5
Data File:	I445991013.CNF;1	**Aliquot:**	1.52 g	**Count Time:**	120 min
Prep Batch:	1748214	**Prep Method:**	DOE EML HASL-300,I-01 M		
Prep Date:	03/19/2018 08:54				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	0.0995	pCi/g	+/-0.274	0.277	0.630	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

B The analyte was detected in the associated method blank >/= MDC or >5% sample activity.
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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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Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991013	**Date Collected:**	03/13/2018 13:26	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	3.3
Client ID:	B3H2D0			**Prep Basis:**	"As Received"
Batch ID:	1748758	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/23/2018 08:23	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1748758.xls	**Aliquot:**	1.26 g	**Count Time:**	15 min
Prep Batch:	1748758	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-0.956	pCi/g	+/-12.2	12.2	22.2	30.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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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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Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991013	**Date Collected:**	03/13/2018 13:26	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	3.3
Client ID:	B3H2D0			**Prep Basis:**	"As Received"
Batch ID:	1748763	**Method:**	C14_LSC	**SOP Ref:**	GL-RAD-A-003
Run Date:	03/28/2018 14:00	**Analyst:**	MXH8	**Instrument:**	LSCGOLD
Data File:	C1748763.xls	**Aliquot:**	0.547 g	**Count Time:**	40 min
Prep Batch:	1748763	**Prep Method:**	EPA EERF C-01 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	0.241	pCi/g	+/-2.09	2.09	3.59	5.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

B The analyte was detected in the associated method blank >/= MDC or >5% sample activity.
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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:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991013**	**Date Collected:**	**03/13/2018 13:26**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**3.3**
Client ID:	**B3H2D0**			**Prep Basis:**	**"As Received"**
Batch ID:	**1749057**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**04/03/2018 11:42**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCSILVER**
Data File:	**E1749057.xls**	**Aliquot:**	**1.333 g**	**Count Time:**	**15 min**
Prep Batch:	**1749057**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/29/2018 08:55**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-1.25	pCi/g	+/-1.75	1.75	3.16	5.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	40900	43600	CPM	93.8	(30%-105%)

Comments:

B The analyte was detected in the associated method blank >/= MDC or >5% sample activity.
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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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Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991013	**Date Collected:**	03/13/2018 13:26	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	3.3
Client ID:	B3H2D0			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1749644	**Method:**	NI63_LSC	**SOP Ref:**	GL-RAD-A-022
Run Date:	04/05/2018 18:33	**Analyst:**	TXJ1	**Instrument:**	LSCRED
Data File:	N1749644R.xls	**Aliquot:**	0.578 g	**Count Time:**	30 min
Prep Batch:	1749644	**Prep Method:**	DOE RESL Ni-1, Modified	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	04/02/2018 13:14				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
NI-63	Nickel-63	U	4.06	pCi/g	+/-3.25	3.33	5.39	10.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Nickel Carrier	20.7	25.2	mg	82.1	(40%-110%)

Comments:

B The analyte was detected in the associated method blank >/= MDC or >5% sample activity.
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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Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991013**	**Date Collected:**	**03/13/2018 13:26**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**3.3**

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991014**	**Date Collected:**	**03/13/2018 13:40**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.3**
Client ID:	**B3H2D3**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747642**	**Method:**	**ASTM C 1475-00 Modified**	**SOP Ref:**	**GL-RAD-A-032**
Run Date:	**03/27/2018 08:48**	**Analyst:**	**BXA4**	**Instrument:**	**1197**
Data File:	**S0445991014_NP.1A.gcnf**	**Aliquot:**	**0.105 g**	**Count Time:**	**240 min**
Prep Batch:	**1747642**	**Prep Method:**	**ASTM C 1475-00 Modified**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:45**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13994-20-2	Neptunium-237	U	0.069	pCi/g	+/-0.426	0.426	0.841	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	2140	2040	pCi/g	105	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991014**	**Date Collected:**	**03/13/2018 13:40**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.3**
Client ID:	**B3H2D3**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747643**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/31/2018 11:09**	**Analyst:**	**BXA4**	**Instrument:**	**1095**
Data File:	**S0445991014_PU.2A.gcnf**	**Aliquot:**	**0.104 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1747643**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.121	pCi/g	+/-0.238	0.238	0.330	1.00
OER-100-70	Plutonium-239/240	U	0.00275	pCi/g	+/-0.204	0.204	0.453	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	15.9	19.0	pCi/g	83.6	(30%-105%)

Comments:

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

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991014**	**Date Collected:**	**03/13/2018 13:40**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.3**
Client ID:	**B3H2D3**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747644**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**03/30/2018 08:25**	**Analyst:**	**BXA4**	**Instrument:**	**1020**
Data File:	**S0445991014_UU.1A.gcnf**	**Aliquot:**	**0.104 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1747644**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/23/2018 11:22**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234		0.926	pCi/g	+/-0.546	0.562	0.545	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.208	pCi/g	+/-0.331	0.332	0.458	1.00
7440-61-1	Uranium-238		0.535	pCi/g	+/-0.395	0.401	0.201	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	17.9	20.1	pCi/g	89.4	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991014	**Date Collected:**	03/13/2018 13:40	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.3
Client ID:	B3H2D3			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1752254	**Method:**	AMCMISO_EIE_PREC_AEA	**SOP Ref:**	GL-RAD-A-011
Run Date:	04/04/2018 09:10	**Analyst:**	BXA4	**Instrument:**	1092
Data File:	S0445991014_AM.2A.gcnf	**Aliquot:**	0.107 g	**Count Time:**	240 min
Prep Batch:	1752254	**Prep Method:**	DOE EML HASL-300, Am-05	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	04/02/2018 17:48				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.00	pCi/g	+/-0.142	0.142	0.211	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	16.7	19.6	pCi/g	85.1	(30%-105%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991014	**Date Collected:**	03/13/2018 13:40	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.3
Client ID:	B3H2D3			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1747846	**Method:**	SRTOT_SEP_PRECIP_GPC	**SOP Ref:**	GL-RAD-A-004
Run Date:	03/24/2018 14:19	**Analyst:**	KSD1	**Instrument:**	PIC13A
Data File:	S1747846r1.xls	**Aliquot:**	0.405 g	**Count Time:**	60 min
Prep Batch:	1747846	**Prep Method:**	EPA 905.0 Modified/DOE RP5	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	03/21/2018 11:48				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	-0.0346	pCi/g	+/-0.434	0.434	0.863	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	3.50	4.30	mg	81.4	(40%-110%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991014**	**Date Collected:**	**03/13/2018 13:40**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.3**
Client ID:	**B3H2D3**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1747859**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**03/20/2018 09:08**	**Analyst:**	**MJH1**	**Instrument:**	**GAM16**
Data File:	**G445991014.CNF;1**	**Aliquot:**	**170.26 g**	**Count Time:**	**240 min**
Prep Batch:	**1747859**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**03/19/2018 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.0106	pCi/g	+/-0.014	0.0148	0.0246	0.100
10198-40-0	Cobalt-60	U	-0.00243	pCi/g	+/-0.0149	0.015	0.0238	0.100
14683-23-9	Europium-152	U	-0.00145	pCi/g	+/-0.0324	0.0324	0.0619	0.100
15585-10-1	Europium-154	U	-0.0411	pCi/g	+/-0.0432	0.0472	0.0721	0.100
14391-16-3	Europium-155	U	0.0102	pCi/g	+/-0.0363	0.0366	0.0694	0.100

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991014	**Date Collected:**	03/13/2018 13:40	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.3
Client ID:	B3H2D3			**Prep Basis:**	"As Received"
Batch ID:	1748214	**Method:**	I129_SEP_LEPS_GS	**SOP Ref:**	GL-RAD-A-006
Run Date:	03/19/2018 14:28	**Analyst:**	BSW1	**Instrument:**	XRAY6
Data File:	I445991014.CNF;1	**Aliquot:**	1.75 g	**Count Time:**	120 min
Prep Batch:	1748214	**Prep Method:**	DOE EML HASL-300,I-01 M		
Prep Date:	03/19/2018 08:54				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	-0.157	pCi/g	+/-0.155	0.171	0.106	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).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991014	**Date Collected:**	03/13/2018 13:40	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.3
Client ID:	B3H2D3			**Prep Basis:**	"As Received"
Batch ID:	1748758	**Method:**	TRITIUM_DIST_LSC	**SOP Ref:**	GL-RAD-A-002
Run Date:	03/23/2018 08:39	**Analyst:**	MXH8	**Instrument:**	LSCBLUE
Data File:	T1748758.xls	**Aliquot:**	1.29 g	**Count Time:**	15 min
Prep Batch:	1748758	**Prep Method:**	EPA 906.0 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-0.087	pCi/g	+/-12.5	12.5	22.7	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).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991014	**Date Collected:**	03/13/2018 13:40	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.3
Client ID:	B3H2D3			**Prep Basis:**	"As Received"
Batch ID:	1748763	**Method:**	C14_LSC	**SOP Ref:**	GL-RAD-A-003
Run Date:	03/28/2018 14:41	**Analyst:**	MXH8	**Instrument:**	LSCGOLD
Data File:	C1748763.xls	**Aliquot:**	0.502 g	**Count Time:**	40 min
Prep Batch:	1748763	**Prep Method:**	EPA EERF C-01 Modified		
Prep Date:	03/22/2018 07:31				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	0.738	pCi/g	+/-2.30	2.30	3.93	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).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991014**	**Date Collected:**	**03/13/2018 13:40**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.3**
Client ID:	**B3H2D3**			**Prep Basis:**	**"As Received"**
Batch ID:	**1749057**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**04/03/2018 11:59**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCSILVER**
Data File:	**E1749057.xls**	**Aliquot:**	**1.267 g**	**Count Time:**	**15 min**
Prep Batch:	**1749057**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/29/2018 08:55**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-1.2	pCi/g	+/-1.83	1.83	3.30	5.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	41800	43600	CPM	95.7	(30%-105%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	GEL445991	**Client:**	CPRC001	**Project:**	CPRC0F17062
Lab Sample ID:	445991014	**Date Collected:**	03/13/2018 13:40	**Matrix:**	SOIL
		Date Received:	03/15/2018 09:15	**%Moisture:**	4.3
Client ID:	B3H2D3			**Prep Basis:**	"Dry Weight Corrected"
Batch ID:	1749644	**Method:**	NI63_LSC	**SOP Ref:**	GL-RAD-A-022
Run Date:	04/05/2018 19:05	**Analyst:**	TXJ1	**Instrument:**	LSCRED
Data File:	N1749644R.xls	**Aliquot:**	0.661 g	**Count Time:**	30 min
Prep Batch:	1749644	**Prep Method:**	DOE RESL Ni-1, Modified	**Prep SOP Ref:**	GL-RAD-A-021
Prep Date:	04/02/2018 13:14				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
NI-63	Nickel-63	U	3.47	pCi/g	+/-2.69	2.77	4.47	10.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Nickel Carrier	21.8	25.2	mg	86.5	(40%-110%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445991**	**Client:**	**CPRC001**	**Project:**	**CPRC0F17062**
Lab Sample ID:	**445991014**	**Date Collected:**	**03/13/2018 13:40**	**Matrix:**	**SOIL**
		Date Received:	**03/15/2018 09:15**	**%Moisture:**	**4.3**

Quality Control Summary

GEL LABORATORIES LLC

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QC Summary

Report Date: April 9, 2018
Page 1 of 7

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **445991**

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Alpha Spec									
Batch 1747642									
QC1203990630 MB									
Neptunium-237			U	-0.0153	pCi/g			BXA4	03/27/1808:48
Uncert:				+/-0.132					
TPU:				+/-0.132					
**Americium-243 Tracer	1940			2020	pCi/g	REC: 104	(30%-105%)		
QC1203990631 445991003 DUP									
Neptunium-237	U	0.0177	U	0.0391	pCi/g				03/27/1808:48
Uncert:		+/-0.185		+/-0.253		RPD: 0	N/A		
TPU:		+/-0.185		+/-0.253		RER: 0.134	(0-2)		
**Americium-243 Tracer	2040	2010		1960	pCi/g	REC: 96	(30%-105%)		
QC1203990632 LCS									
Neptunium-237	40.6			42.3	pCi/g	REC: 104	(80%-120%)		03/27/1808:48
Uncert:				+/-3.18					
TPU:				+/-5.59					
**Americium-243 Tracer	1940			2050	pCi/g	REC: 105	(30%-105%)		
Batch 1747643									
QC1203990633 MB									
Plutonium-238			U	0.131	pCi/g			BXA4	03/30/1809:08
Uncert:				+/-0.301					
TPU:				+/-0.301					
Plutonium-239/240			U	-0.103	pCi/g				
Uncert:				+/-0.196					
TPU:				+/-0.196					
**Plutonium-242 Tracer	18.1			14.4	pCi/g	REC: 79	(30%-105%)		
Uncert:				+/-2.45					
TPU:				+/-3.62					
QC1203990634 445991003 DUP									
Plutonium-238	U	0.0478	U	0.00	pCi/g				03/30/1809:08
Uncert:		+/-0.266		+/-0.195		RPD: 0	N/A		
TPU:		+/-0.266		+/-0.195		RER: 0.284	(0-2)		
Plutonium-239/240	U	0.00	U	0.340	pCi/g				
Uncert:		+/-0.185		+/-0.430		RPD: 0	N/A		
TPU:		+/-0.186		+/-0.433		RER: 1.41	(0-2)		
**Plutonium-242 Tracer	18.7	15.5		13.3	pCi/g	REC: 71	(30%-105%)		
Uncert:		+/-2.55		+/-2.64					
TPU:		+/-3.76		+/-3.89					
QC1203990635 LCS									
Plutonium-238			U	0.0206	pCi/g				03/31/1811:12
Uncert:				+/-0.216					
TPU:				+/-0.216					
Plutonium-239/240	18.1			16.0	pCi/g	REC: 88	(80%-120%)		
Uncert:				+/-2.14					
TPU:				+/-3.07					
**Plutonium-242 Tracer	18.1			16.0	pCi/g	REC: 88	(30%-105%)		

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QC Summary

Workorder: 445991

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Alpha Spec									
Batch 1747643									
Uncert:				+/-2.27					
TPU:				+/-3.38					
Batch 1747644									
QC1203990636 MB									
Uranium-233/234			U	0.662	pCi/g			BXA4	03/31/1810:31
Uncert:				+/-0.604					
TPU:				+/-0.614					
Uranium-235/236			U	0.244	pCi/g				
Uncert:				+/-0.431					
TPU:				+/-0.433					
Uranium-238			U	0.305	pCi/g				
Uncert:				+/-0.386					
TPU:				+/-0.388					
**Uranium-232 Tracer	19.2			17.5	pCi/g	REC: 92	(30%-105%)		
Uncert:				+/-2.54					
TPU:				+/-3.87					
QC1203990637 445991003 DUP									
Uranium-233/234		0.835	U	0.351	pCi/g				03/30/1808:25
Uncert:		+/-0.517		+/-0.376		RPD: 56	(0% - 100%)		
TPU:		+/-0.532		+/-0.381		RER: 1.45	(0-2)		
Uranium-235/236	U	-0.02	U	0.135	pCi/g				
Uncert:		+/-0.173		+/-0.311		RPD: 0	N/A		
TPU:		+/-0.173		+/-0.311		RER: 0.854	(0-2)		
Uranium-238		0.559	U	0.343	pCi/g				
Uncert:		+/-0.423		+/-0.349		RPD: 47	(0% - 100%)		
TPU:		+/-0.431		+/-0.352		RER: 0.764	(0-2)		
**Uranium-232 Tracer	19.7	15.5		16.9	pCi/g	REC: 86	(30%-105%)		
Uncert:		+/-2.29		+/-2.35					
TPU:		+/-3.54		+/-3.64					
QC1203990638 LCS									
Uranium-233/234				23.0	pCi/g				
Uncert:				+/-2.18					
TPU:				+/-3.68					
Uranium-235/236				1.58	pCi/g				
Uncert:				+/-0.651					
TPU:				+/-0.682					
Uranium-238	24.8			23.3	pCi/g	REC: 94	(80%-120%)		
Uncert:				+/-2.19					
TPU:				+/-3.70					
**Uranium-232 Tracer	19.2			18.5	pCi/g	REC: 97	(30%-105%)		
Uncert:				+/-2.00					
TPU:				+/-3.17					
Batch 1752254									
QC1204001199 MB									
Americium-241			U	-0.0398	pCi/g			BXA4	04/04/1809:09
Uncert:				+/-0.180					
TPU:				+/-0.180					
**Americium-243 Tracer	18.2			18.3	pCi/g	REC: 100	(30%-105%)		
Uncert:				+/-2.02					
TPU:				+/-3.11					

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QC Summary

Workorder: 445991

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Alpha Spec									
Batch 1752254									
QC1204001200 445991003 DUP									
Americium-241	U	0.0488		0.320	pCi/g				04/04/1809:10
Uncert:		+/-0.183		+/-0.291		RPD: 4	(0% - 100%)		
TPU:		+/-0.183		+/-0.294		RER: 1.54	(0-2)		
**Americium-243 Tracer	19.1	17.2		17.6	pCi/g	REC: 92	(30%-105%)		
Uncert:		+/-2.11		+/-2.01					
TPU:		+/-3.23		+/-3.12					
QC1204001201 LCS									
Americium-241	17.1			16.7	pCi/g	REC: 98	(80%-120%)		04/05/1815:42
Uncert:				+/-1.83					
TPU:				+/-2.76					
**Americium-243 Tracer	18.2			17.6	pCi/g	REC: 97	(30%-105%)		
Uncert:				+/-1.90					
TPU:				+/-2.95					
Rad Gamma Spec									
Batch 1747859									
QC1203991173 MB									
Cesium-137			U	-0.000292	pCi/g			MJH1	03/20/1809:09
Uncert:				+/-0.0101					
TPU:				+/-0.0101					
Cobalt-60			U	-0.000629	pCi/g				
Uncert:				+/-0.00845					
TPU:				+/-0.00845					
Europium-152			BX	0.0787	pCi/g				
Uncert:				+/-0.0591					
TPU:				+/-0.0693					
Europium-154			U	0.00678	pCi/g				
Uncert:				+/-0.0284					
TPU:				+/-0.0286					
Europium-155			U	0.00711	pCi/g				
Uncert:				+/-0.0242					
TPU:				+/-0.0244					
QC1203991174 445991003 DUP									
Cesium-137		0.277		0.308	pCi/g				03/20/1809:09
Uncert:		+/-0.0312		+/-0.0579		RPD: 11	(0%-30%)		
TPU:		+/-0.0385		+/-0.0631		RER: 0.816	(0-2)		
Cobalt-60	U	0.00446	U	-0.00837	pCi/g				
Uncert:		+/-0.0129		+/-0.0205		RPD: 0	N/A		
TPU:		+/-0.0131		+/-0.0209		RER: 1.02	(0-2)		
Europium-152	U	0.020	U	-0.022	pCi/g				
Uncert:		+/-0.0296		+/-0.0551		RPD: 0	N/A		
TPU:		+/-0.031		+/-0.0561		RER: 1.29	(0-2)		
Europium-154	U	0.00686	U	-0.0038	pCi/g				
Uncert:		+/-0.041		+/-0.0674		RPD: 0	N/A		
TPU:		+/-0.0411		+/-0.0674		RER: 0.265	(0-2)		
Europium-155	U	0.0371	U	0.0453	pCi/g				
Uncert:		+/-0.0354		+/-0.0865		RPD: 0	N/A		
TPU:		+/-0.0393		+/-0.0866		RER: 0.169	(0-2)		
QC1203991175 LCS									
Americium-241	488			527	pCi/g	REC: 108	(80%-120%)		03/20/1809:10

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QC Summary

Workorder: 445991

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gamma Spec									
Batch 1747859									
	Uncert:			+/-4.36					
	TPU:			+/-49.6					
Cesium-137	173			181	pCi/g	REC: 104	(80%-120%)		
	Uncert:			+/-3.22					
	TPU:			+/-16.7					
Cobalt-60	132			131	pCi/g	REC: 99	(80%-120%)		
	Uncert:			+/-3.29					
	TPU:			+/-12.6					
Europium-152			U	-0.136	pCi/g				
	Uncert:			+/-1.21					
	TPU:			+/-1.21					
Europium-154			U	-0.0687	pCi/g				
	Uncert:			+/-0.939					
	TPU:			+/-0.940					
Europium-155			U	-0.47	pCi/g				
	Uncert:			+/-0.824					
	TPU:			+/-0.852					
Batch 1748214									
QC1203991887 MB									
Iodine-129			U	0.109	pCi/g			BSW1	03/19/1816:50
	Uncert:			+/-0.256					
	TPU:			+/-0.260					
QC1203991888 445991003 DUP									
Iodine-129		U -0.0201	U	-0.171	pCi/g				03/19/1816:51
	Uncert:	+/-0.350		+/-0.341		RPD: 0	N/A		
	TPU:	+/-0.350		+/-0.350		RER: 0.596	(0-2)		
QC1203991889 445991003 MS									
Iodine-129	35.6	U -0.0201		37.8	pCi/g	REC: 106	(75%-125%)		03/19/1816:51
	Uncert:	+/-0.350		+/-3.55					
	TPU:	+/-0.350		+/-5.19					
QC1203991890 LCS									
Iodine-129	21.9			26.1	pCi/g	REC: 119	(80%-120%)		03/19/1816:52
	Uncert:			+/-2.27					
	TPU:			+/-3.46					
Rad Gas Flow									
Batch 1747846									
QC1203991146 MB									
Total Strontium			U	-0.055	pCi/g			KSD1	03/24/1814:20
	Uncert:			+/-0.345					
	TPU:			+/-0.345					
**Strontium Carrier	4.30			3.80	mg	REC: 88	(40%-110%)		
QC1203991147 445991005 DUP									
Total Strontium		U 0.892	U	-0.236	pCi/g				03/26/1808:47
	Uncert:	+/-0.858		+/-0.425		RPD: 0	N/A		
	TPU:	+/-0.888		+/-0.426		RER: 2.25	(0-2)		
**Strontium Carrier	4.30	3.30		3.60	mg	REC: 84	(40%-110%)		
QC1203991148 LCS									
Total Strontium	58.0			58.1	pCi/g	REC: 100	(80%-120%)		03/24/1814:20
	Uncert:			+/-2.87					
	TPU:			+/-15.4					

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Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gas Flow									
Batch 1747846									
**Strontium Carrier	4.30			3.80	mg	REC: 88	(40%-110%)		
Rad Liquid Scintillation									
Batch 1748758									
QC1203993200 MB									
Tritium			U	1.18	pCi/g			MXH8	03/23/1808:56
Uncert:				+/-12.0					
TPU:				+/-12.0					
QC1203993201 445991003 DUP									
Tritium	U	2.24	U	-0.495	pCi/g				03/23/1809:12
Uncert:		+/-13.0		+/-11.8		RPD: 0	N/A		
TPU:		+/-13.1		+/-11.8		RER: 0.304	(0-2)		
QC1203993202 445991003 MS									
Tritium	130 U	2.24		125	pCi/g	REC: 97	(75%-125%)		03/23/1809:28
Uncert:		+/-13.0		+/-24.9					
TPU:		+/-13.1		+/-37.8					
QC1203993203 LCS									
Tritium	99.5			89.9	pCi/g	REC: 90	(80%-120%)		03/23/1809:45
Uncert:				+/-17.9					
TPU:				+/-27.2					
Batch 1748763									
QC1203993219 MB									
Carbon-14			U	1.17	pCi/g			MXH8	03/28/1815:23
Uncert:				+/-2.03					
TPU:				+/-2.03					
QC1203993220 445991004 DUP									
Carbon-14	U	-0.739	U	-0.244	pCi/g				03/28/1816:05
Uncert:		+/-2.10		+/-2.21		RPD: 0	N/A		
TPU:		+/-2.10		+/-2.21		RER: 0.319	(0-2)		
QC1203993221 445991004 MS									
Carbon-14	254 U	-0.739		220	pCi/g	REC: 86	(75%-125%)		03/28/1816:47
Uncert:		+/-2.10		+/-7.69					
TPU:		+/-2.10		+/-18.4					
QC1203993222 LCS									
Carbon-14	131			119	pCi/g	REC: 91	(80%-120%)		03/28/1817:30
Uncert:				+/-4.03					
TPU:				+/-9.68					
Batch 1749057									
QC1203993907 MB									
Technetium-99			U	-0.523	pCi/g			TXJ1	04/03/1812:15
Uncert:				+/-1.70					
TPU:				+/-1.70					
**Technetium-99m Tracer	43600			42500	CPM	REC: 97	(30%-105%)		
QC1203993908 445991003 DUP									
Technetium-99	U	-0.793	U	-0.165	pCi/g				04/03/1812:32
Uncert:		+/-1.94		+/-1.91		RPD: 0	N/A		
TPU:		+/-1.94		+/-1.91		RER: 0.453	(0-2)		
**Technetium-99m Tracer	43600	41000		40700	CPM	REC: 93	(30%-105%)		
QC1203993909 LCS									
Technetium-99	66.6			64.8	pCi/g	REC: 97	(80%-120%)		04/03/1812:49

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QC Summary

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Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Liquid Scintillation									
Batch 1749057									
Uncert:				+/-3.70					
TPU:				+/-8.28					
**Technetium-99m Tracer	43600			41700	CPM	REC: 96	(30%-105%)		
Batch 1749644									
QC1203995100 MB									
Nickel-63			U	4.15	pCi/g			TXJ1	04/05/1819:36
Uncert:				+/-2.83					
TPU:				+/-2.94					
**Nickel Carrier	25.2			20.9	mg	REC: 83	(40%-110%)		
QC1203995101 445991005 DUP									
Nickel-63	U	3.29	U	4.44	pCi/g				04/05/1820:08
Uncert:		+/-3.47		+/-3.40		RPD: 0	N/A		
TPU:		+/-3.52		+/-3.49		RER: 0.456	(0-2)		
**Nickel Carrier	25.2	20.7		20.9	mg	REC: 83	(40%-110%)		
QC1203995102 LCS									
Nickel-63	202			191	pCi/g	REC: 95	(80%-120%)		04/05/1820:40
Uncert:				+/-6.43					
TPU:				+/-35.9					
**Nickel Carrier	25.2			21.5	mg	REC: 85	(40%-110%)		

Notes:

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

The Qualifiers in this report are defined as follows:

<	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide
>	Result greater than quantifiable range or greater than upper limit of the analysis range
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 analyte was detected in the associated method blank >/= MDC or >5% sample activity.
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.
N	Spike Sample recovery is outside control limits.
U	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
UX	Gamma Spectroscopy--Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Z	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

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

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