GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
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gel.com

July 10, 2017

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

Re: CHPRC SAF FRC16-09
Work Order: 425501
SDG: GEL425501

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 15, 2017. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

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

Sincerely,

B. Luthman

Brielle Luthman for
Heather Shaffer
Project Manager

Purchase Order: 304291 - 8C
Chain of Custody: FRC16-09-065, FRC16-09-066, FRC16-09-067, FRC16-09-068, FRC16-09-069, FRC16-09-070, FRC16-09-071 and FRC16-09-072
Enclosures

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Case Narrative

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF FRC16-09
SDG: GEL425501

July 10, 2017

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt

The sample(s) arrived at GEL Laboratories, LLC, Charleston, South Carolina on June 15, 2017, for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

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

Sample Identification
The laboratory received the following samples:

Laboratory Identification	Sample Description
425501001	B38JM8
425501002	B38JM9
425501003	B38JN0
425501004	B38JN1
425501005	B38JN2
425501006	B38JN3
425501007	B38JN4
425501008	B38JN5

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: Diesel Range Organics, GC/MS Semivolatile, Metals 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.

B Luthman

Brielle Luthman for
Heather Shaffer
Project Manager

Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL425501
Work Order #: 425501

GC/MS Semivolatile

Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

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 1203812070 (LCS), 1203812071 (B38JN3MS) and 1203812072 (B38JN3MSD) required manual integration in order to properly identify one or more peaks and/or to correctly position the baseline as set in the calibration standard injections.

Diesel Range Organics

Analysis of Diesel Range Organics by Flame Ionization Detector

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

Surrogate Recoveries
Samples (See Below) did not meet the client specified limits; however, the recoveries were within the lab's statistically derived limits. Outliers were expected and the data were reported.

Sample	Analyte	Value
1203811208 (MB)	o-Terphenyl	41* (60.0%-140.0%)
1203811214 (LCS)	o-Terphenyl	54* (60%-140%)
425501001 (B38JM8)	o-Terphenyl	57* (60%-140%)
425501003 (B38JN0)	o-Terphenyl	58* (60%-140%)
425501004 (B38JN1)	o-Terphenyl	57* (60%-140%)
425501005 (B38JN2)	o-Terphenyl	55* (60%-140%)
425501006 (B38JN3)	o-Terphenyl	58* (60%-140%)
425501008 (B38JN5)	o-Terphenyl	56* (60%-140%)

Laboratory Control Sample (LCS/LCSD) Recovery
LCS (See Below) did not meet the client specified limits; however, the recoveries were within the lab's statistically derived limits. Outliers were expected and the data were reported.

Sample	Analyte	Value
1203811209 (LCS)	Diesel Range Organics	69* (70%-130%)
1203811214 (LCS)	Kerosene	47* (70.0%-130.0%)
1203811215 (LCSD)	Kerosene	58* (70.0%-130.0%)

Matrix Spike (MS/MSD) Recovery Statement
The MSD spike recovery was slightly below the acceptance limits.

Sample	Analyte	Value
1203811211 (B38JM4MSD)	Diesel Range Organics	67* (70%-130%)

Miscellaneous Information

Manual Integrations
Samples 1203811209 (LCS), 1203811210 (B38JM4MS) and 1203811211 (B38JM4MSD) required manual integration to correctly position the baseline as set in the calibration standard injections.

Metals

Determination of Metals by ICP-MS

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 Dilutions
The ICPMS solid samples in this SDG were diluted the standard two times.

Analyte	425501							
	001	002	003	004	005	006	007	008
Uranium	2X	2X	2X	2X	2X	2X	2X	2X

Radiochemistry

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.

Technical Information

Recounts
Sample 425501004 (B38JN1) recounted due to high carrier/tracer yield. Sample was then recounted again due to high carrier/tracer yield. The third count is 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 425501007 (B38JN4) and 425501008 (B38JN5) were recounted due to a peak shift. The recounts are reported.

Miscellaneous Information

UISO_IE_PRECIP_AEA:COMMON

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.

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

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.

Technical Information

Recounts
Samples 1203814268 (B38JM4DUP), 425501003 (B38JN0), 425501004 (B38JN1) and 425501008 (B38JN5) were recounted due to results more negative than the three sigma TPU. The second counts are 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			FRC16-09-065	PAGE 1 OF 1
COLLECTOR: D. CLEGG	COMPANY CONTACT: NAGEL, SE	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: NAGEL, SE	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: 316-4 Overburden Row 6 Section B Composite 1	PROJECT DESIGNATION: 316-4 Overburden/Layback Sampling - Soil		SAF NO.: FRC16-09	AIR QUALITY: ☐	
ICE CHEST NO.: ERC-96-014	FIELD LOGBOOK NO.: HNF-N-880	ACTUAL SAMPLE DEPTH: N/A	COA: FRR 6-14-17 ~~304291~~ 304285	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: PTR# 8045		BILL OF LADING/AIR BILL NO.: FedEx 7794 0471 3579		

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
NA

PRESERVATION	Cool <=6C	Cool <=6C	None	None
HOLDING TIME	14/40 Days	14/40 Days	6 Months	6 Months
TYPE OF CONTAINER	G	aG	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	125mL	125mL	60mL	1L
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	6020_METALS_ICPMS: COMMON (Add-on) {Uranium};	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B38JM8	SOIL	6/14/17	0930	✓	✓	✓	✓

425501

July 11, 2017

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: David Clegg	DATE/TIME: 6.14.17 1040	RECEIVED BY/STORED IN: RT Coffman / RT Coffman	DATE/TIME: 6/14/17 1040
RELINQUISHED BY/REMOVED FROM: RT Coffman / RT Coffman	DATE/TIME: 6/14/17 ~~1040~~ 1200	RECEIVED BY/STORED IN: T.R. Edmundson / T.R. Edmundson	DATE/TIME: 6-14-17 1200
RELINQUISHED BY/REMOVED FROM: T.R. Edmundson / T.R. Edmundson	DATE/TIME: 6-14-17 1500	RECEIVED BY/STORED IN: FedEx	DATE/TIME: 6-14-17
RELINQUISHED BY/REMOVED FROM:	DATE/TIME: FED EX	RECEIVED BY/STORED IN: Stacy Bonnt	DATE/TIME: 6-15-17 9:00
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
(1) WTPH_DIESEL: COMMON {Total petroleum hydrocarbons - diesel range}; WTPH_KEROSENE: COMMON {Total petroleum hydrocarbons - kerosene range}; WTPH_MOTOR OIL: COMMON {Total petroleum hydrocarbons - motor oil (high boiling)};
(2) 8270_SVOA_GCMS: COMMON (Add-on) {Tributyl phosphate};
(3) GAMMA_GS: COMMON {Cesium-137}; AMCMISO_IE_PRECIP_AEA: COMMON {Americium-241}; PUISO_IE_PRECIP_AEA: COMMON {Plutonium-238, Plutonium-239/240}; UISO_IE_PRECIP_AEA: COMMON {Uranium-233/234, Uranium-235, Uranium-238}; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium};

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

PRINTED ON 1/4/2017 FSR ID = FSR40869 TRVL NUM = TRVL-17-057 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			FRC16-09-066	PAGE 1 OF 1
COLLECTOR: D. CLEGG	COMPANY CONTACT: NAGEL, SE	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: NAGEL, SE	PRICE CODE: 8C	DATA TURNAROUND
SAMPLING LOCATION: 316-4 Overburden Row 6 Section B Composite 2	PROJECT DESIGNATION: 316-4 Overburden/Layback Sampling - Soil		SAF NO.: FRC16-09	AIR QUALITY ☐	15 Days / 15 Days
ICE CHEST NO.: ERC-96-014	FIELD LOGBOOK NO.: HNF-N-880	ACTUAL SAMPLE DEPTH: N/A	COA: TRC 6-14-17 ~~304291~~ 304285	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: PTR# 8045		BILL OF LADING/AIR BILL NO.: FedEx 7794 0471 3579		

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
NA

PRESERVATION	Cool <=6C	Cool <=6C	None	None	
HOLDING TIME	14/40 Days	14/40 Days	6 Months	6 Months	
TYPE OF CONTAINER	G	aG	G/P	G/P	
NO. OF CONTAINER(S)	1	1	1	1	
VOLUME	125mL	125mL	60mL	1L	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	6020_METALS_ICPMS: COMMON (Add-on) {Uranium};	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	
SAMPLE NO. / MATRIX* / SAMPLE DATE / SAMPLE TIME					
B38JM9 / SOIL / 6/14/17 0940	✓	✓	✓	✓	

425501

July 11, 2017

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
David Clegg Dj Cly	6.14.17 1040	RTCoffman/RTCoffman	6/14/17 1040
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RTCoffman/RTCoffman	6/14/17 1200	F.R. Edmundson F.R. Edmundson	6-14-17 1200
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
PRC F.R. Edmundson F.R. Edmundson	6-14-17 1500	Fed Ex	6-14-17 —
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
FED EX		STALY BOOUE	6/15/17 9:05
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
(1) WTPH_DIESEL: COMMON {Total petroleum hydrocarbons - diesel range}; WTPH_KEROSENE: COMMON {Total petroleum hydrocarbons - kerosene range}; WTPH_MOTOR OIL: COMMON {Total petroleum hydrocarbons - motor oil (high boiling)};
(2) 8270_SVOA_GCMS: COMMON (Add-on) {Tributyl phosphate};
(3) GAMMA_GS: COMMON {Cesium-137}; AMCMISO_IE_PRECIP_AEA: COMMON {Americium-241}; PUISO_IE_PRECIP_AEA: COMMON {Plutonium-238, Plutonium-239/240}; UISO_IE_PRECIP_AEA: COMMON {Uranium-233/234, Uranium-235, Uranium-238}; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium};

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

PRINTED ON 1/4/2017 FSR ID = FSR40870 TRVL NUM = TRVL-17-057 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			FRC16-09-067	PAGE 1 OF 1
COLLECTOR: D. CLEGG	COMPANY CONTACT: NAGEL, SE	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: NAGEL, SE	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: 316-4 Overburden Row 6 Section B Grab 1	PROJECT DESIGNATION: 316-4 Overburden/Layback Sampling - Soil		SAF NO.: FRC16-09	AIR QUALITY: ☐	
ICE CHEST NO.: ERC-96-014	FIELD LOGBOOK NO.: HNF-N-880	ACTUAL SAMPLE DEPTH: N/A	COA: 6-14-17 ~~304291~~ 304285	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: PTR# 8045		BILL OF LADING/AIR BILL NO.: FedEx 7794 0471 3579		

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
NA

PRESERVATION	Cool <=6C	Cool <=6C	None	None
HOLDING TIME	14/40 Days	14/40 Days	6 Months	6 Months
TYPE OF CONTAINER	G	aG	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	125mL	125mL	60mL	1L
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	6020_METALS_ICPMS: COMMON (Add-on) {Uranium};	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B38JN0	SOIL	6/14/17	0950	✓	✓	✓	✓

425501

July 11, 2017

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
David Clegg DiClegg	6-14-17 1040	RT Coffman/RT Coffman	6/14/17 1040
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RT Coffman/RT Coffman	6/14/17 1200	T.R. Edmundson T.R. Edmundson	6-14-17 1200
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
T.R. Edmundson T.R. Edmundson	6-14-17 1500	Fed Ex	6-14-17 —
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
	FED EX	Stacy Boone STACY BOONE	6/15/17 9:05
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
(1) WTPH_DIESEL: COMMON {Total petroleum hydrocarbons - diesel range}; WTPH_KEROSENE: COMMON {Total petroleum hydrocarbons - kerosene range}; WTPH_MOTOR OIL: COMMON {Total petroleum hydrocarbons - motor oil (high boiling)};
(2) 8270_SVOA_GCMS: COMMON (Add-on) {Tributyl phosphate};
(3) GAMMA_GS: COMMON {Cesium-137}; AMCMISO_IE_PRECIP_AEA: COMMON {Americium-241}; PUISO_IE_PRECIP_AEA: COMMON {Plutonium-238, Plutonium-239/240}; UISO_IE_PRECIP_AEA: COMMON {Uranium-233/234, Uranium-235, Uranium-238}; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium};

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

PRINTED ON 1/4/2017 FSR ID = FSR40871 TRVL NUM = TRVL-17-057 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			FRC16-09-068	PAGE 1 OF 1
COLLECTOR: D. CLEGG	COMPANY CONTACT: NAGEL, SE	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: NAGEL, SE	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: 316-4 Overburden Row 6 Section B Grab 2	PROJECT DESIGNATION: 316-4 Overburden/Layback Sampling - Soil		SAF NO.: FRC16-09	AIR QUALITY: ☐	
ICE CHEST NO.: ERC-96-014	FIELD LOGBOOK NO.: HNF-N-880	ACTUAL SAMPLE DEPTH: N/A	COA: TR12 6-14-17 ~~304291~~ 304285	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: PTR# 8045		BILL OF LADING/AIR BILL NO.: Fed Ex 7794 0471 3579		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
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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
NA

PRESERVATION				Cool <=6C	Cool <=6C	None	None
HOLDING TIME				14/40 Days	14/40 Days	6 Months	6 Months
TYPE OF CONTAINER				G	aG	G/P	G/P
NO. OF CONTAINER(S)				1	1	1	1
VOLUME				125mL	125mL	60mL	1L
SAMPLE ANALYSIS				SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	6020_METALS_ICPMS: COMMON (Add-on) {Uranium};	SEE ITEM (3) IN SPECIAL INSTRUCTIONS
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B38JN1	SOIL	6/14/17	0955	✓	✓	✓	✓

425501

July 11, 2017

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: David Clegg D. Clegg	DATE/TIME: 6-14-17 1040	RECEIVED BY/STORED IN: RTCOFFMAN/RTCoffman	DATE/TIME: 6/14/17 1040
RELINQUISHED BY/REMOVED FROM: RTCOFFMAN/RTCoffman	DATE/TIME: 6/14/17 1200	RECEIVED BY/STORED IN: T.R. Edmundson T.R. Edmundson	DATE/TIME: 6-14-17 1200
RELINQUISHED BY/REMOVED FROM: PRC T.R. Edmundson T.R. Edmundson	DATE/TIME: 6-14-17 1500	RECEIVED BY/STORED IN: Fed Ex	DATE/TIME: 6-14-17 —
RELINQUISHED BY/REMOVED FROM:	DATE/TIME: FED EX	RECEIVED BY/STORED IN: By STACY ROWN	DATE/TIME: 6-15-17 9:00
RELINQUISHED BY/REMOVED FROM:	DATE/TIME:	RECEIVED BY/STORED IN:	DATE/TIME:
RELINQUISHED BY/REMOVED FROM:	DATE/TIME:	RECEIVED BY/STORED IN:	DATE/TIME:
RELINQUISHED BY/REMOVED FROM:	DATE/TIME:	RECEIVED BY/STORED IN:	DATE/TIME:

SPECIAL INSTRUCTIONS
(1) WTPH_DIESEL: COMMON {Total petroleum hydrocarbons - diesel range}; WTPH_KEROSENE: COMMON {Total petroleum hydrocarbons - kerosene range}; WTPH_MOTOR OIL: COMMON {Total petroleum hydrocarbons - motor oil (high boiling)};
(2) 8270_SVOA_GCMS: COMMON (Add-on) {Tributyl phosphate};
(3) GAMMA_GS: COMMON {Cesium-137}; AMCMISO_IE_PRECIP_AEA: COMMON {Americium-241}; PUISO_IE_PRECIP_AEA: COMMON {Plutonium-238, Plutonium-239/240}; UISO_IE_PRECIP_AEA: COMMON {Uranium-233/234, Uranium-235, Uranium-238}; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium};

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

PRINTED ON 1/4/2017 FSR ID = FSR40872 TRVL NUM = TRVL-17-057 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			FRC16-09-069	PAGE 1 OF 1
COLLECTOR: D. CLEGG	COMPANY CONTACT: NAGEL, SE	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: NAGEL, SE	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: 316-4 Overburden Row 6 Section C Composite 1	PROJECT DESIGNATION: 316-4 Overburden/Layback Sampling - Soil		SAF NO.: FRC16-09	AIR QUALITY: ☐	
ICE CHEST NO.: ERC-96-014	FIELD LOGBOOK NO.: HNF-N-880	ACTUAL SAMPLE DEPTH: N/A	COA: TRC 6-14-17 ~~304291~~ 304285	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: PTR # 8045		BILL OF LADING/AIR BILL NO.: Fed Ex 7794 0471 3579		

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
NA

PRESERVATION	Cool <=6C	Cool <=6C	None	None
HOLDING TIME	14/40 Days	14/40 Days	6 Months	6 Months
TYPE OF CONTAINER	G	aG	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	125mL	125mL	60mL	1L
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	6020_METALS_ICPMS: COMMON (Add-on) {Uranium};	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B38JN2	SOIL	6/14/17	1005	✓	✓	✓	✓

425501

July 11, 2017

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: David Clegg	DATE/TIME: 6-14-17 1040	RECEIVED BY/STORED IN: RT Coffman/RT Coffman	DATE/TIME: 6/14/17 1040
RELINQUISHED BY/REMOVED FROM: RT Coffman/RT Coffman	DATE/TIME: 6/14/17 1200	RECEIVED BY/STORED IN: T.R. Edmundson T.R. Edmundson	DATE/TIME: 6-14-17 1200
RELINQUISHED BY/REMOVED FROM: PRC T.R. Edmundson T.R. Edmundson	DATE/TIME: 6-14-17 1500	RECEIVED BY/STORED IN: Fed Ex	DATE/TIME: 6-14-17 —
RELINQUISHED BY/REMOVED FROM: FEDEX	DATE/TIME:	RECEIVED BY/STORED IN: Kyle Stacy Brown	DATE/TIME: 6-15-17 9:05
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:

SPECIAL INSTRUCTIONS
(1) WTPH_DIESEL: COMMON {Total petroleum hydrocarbons - diesel range}; WTPH_KEROSENE: COMMON {Total petroleum hydrocarbons - kerosene range}; WTPH_MOTOR OIL: COMMON {Total petroleum hydrocarbons - motor oil (high boiling)};
(2) 8270_SVOA_GCMS: COMMON (Add-on) {Tributyl phosphate};
(3) GAMMA_GS: COMMON {Cesium-137}; AMCMISO_IE_PRECIP_AEA: COMMON {Americium-241}; PUISO_IE_PRECIP_AEA: COMMON {Plutonium-238, Plutonium-239/240}; UISO_IE_PRECIP_AEA: COMMON {Uranium-233/234, Uranium-235, Uranium-238}; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium};

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

PRINTED ON 1/4/2017 FSR ID = FSR40873 TRVL NUM = TRVL-17-057 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			FRC16-09-070	PAGE 1 OF 1
COLLECTOR: D. CLEGG	COMPANY CONTACT: NAGEL, SE	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: NAGEL, SE	PRICE CODE: 8C	DATA TURNAROUND
SAMPLING LOCATION: 316-4 Overburden Row 6 Section C Composite 2	PROJECT DESIGNATION: 316-4 Overburden/Layback Sampling - Soil		SAF NO.: FRC16-09	AIR QUALITY ☐	15 Days / 15 Days
ICE CHEST NO.: ERC-96-014	FIELD LOGBOOK NO.: HNF-N-880	ACTUAL SAMPLE DEPTH: N/A	COA: TRE 6-14-17 ~~304291~~ 304285	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: PTR# 8045		BILL OF LADING/AIR BILL NO.: Fed Ex 7794 0471 3579		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
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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
NA

PRESERVATION	Cool <=6C	Cool <=6C	None	None
HOLDING TIME	14/40 Days	14/40 Days	6 Months	6 Months
TYPE OF CONTAINER	G	aG	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	125mL	125mL	60mL	1L
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	6020_METALS_ICPMS: COMMON (Add-on) {Uranium};	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B38JN3	SOIL	6/14/17	1010	✓	✓	✓	✓

425501

July 11, 2017

CHAIN OF POSSESSION — **SIGN/ PRINT NAMES**

1040 RC 6/14/17

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
David Clegg DC Clegg	6.14.17 ~~1030~~	RT COFFMAN/RT Coffman	6/14/17 1040
RT COFFMAN/RT Coffman	6/14/17 1200	T.R. Edmundson T.R. Edmundson	6-14-17 1200
T.R. Edmundson T.R. Edmundson	6-14-17 1500	Fed Ex	6-14-17 —
FED EX		STACY BOONE	6-15-17 9:00

SPECIAL INSTRUCTIONS
(1) WTPH_DIESEL: COMMON {Total petroleum hydrocarbons - diesel range}; WTPH_KEROSENE: COMMON {Total petroleum hydrocarbons - kerosene range}; WTPH_MOTOR OIL: COMMON {Total petroleum hydrocarbons - motor oil (high boiling)};
(2) 8270_SVOA_GCMS: COMMON (Add-on) {Tributyl phosphate};
(3) GAMMA_GS: COMMON {Cesium-137}; AMCMISO_IE_PRECIP_AEA: COMMON {Americium-241}; PUISO_IE_PRECIP_AEA: COMMON {Plutonium-238, Plutonium-239/240}; UISO_IE_PRECIP_AEA: COMMON {Uranium-233/234, Uranium-235, Uranium-238}; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium};

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

PRINTED ON 1/4/2017 FSR ID = FSR40874 TRVL NUM = TRVL-17-057 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			FRC16-09-071	PAGE 1 OF 1
COLLECTOR: D. CLEGG	COMPANY CONTACT: NAGEL, SE	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: NAGEL, SE	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: 316-4 Overburden Row 6 Section C Grab 1	PROJECT DESIGNATION: 316-4 Overburden/Layback Sampling - Soil		SAF NO.: FRC16-09	AIR QUALITY: ☐	
ICE CHEST NO.: ERC-96-014	FIELD LOGBOOK NO.: HNF-N-880	ACTUAL SAMPLE DEPTH: N/A	COA: TRR 6-14-17 ~~304291~~ 304285	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: PTR# 8045		BILL OF LADING/AIR BILL NO.: Fed Ex 7794 0471 3579		

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
NA

PRESERVATION	Cool <=6C	Cool <=6C	None	None
HOLDING TIME	14/40 Days	14/40 Days	6 Months	6 Months
TYPE OF CONTAINER	G	aG	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	125mL	125mL	60mL	1L
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	6020_METALS_ICPMS: COMMON (Add-on) {Uranium};	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B38JN4	SOIL	6/14/17	1020	✓	✓	✓	✓

425501

July 11, 2017

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: David Clegg D R Clegg	DATE/TIME: 6-14-17 1040	RECEIVED BY/STORED IN: RT Coffman / RT Coffman	DATE/TIME: 6/14/17 1040
RELINQUISHED BY/REMOVED FROM: RT Coffman / RT Coffman 6/14/17	DATE/TIME: 1200	RECEIVED BY/STORED IN: J.R. Edmundson J.R. Edmundson 6-14-17	DATE/TIME: 1200
RELINQUISHED BY/REMOVED FROM: FRC J.R. Edmundson J.R. Edmundson 6-14-17	DATE/TIME: 1500	RECEIVED BY/STORED IN: Fed Ex 6-14-17	DATE/TIME: 1500
RELINQUISHED BY/REMOVED FROM: FEDEX	DATE/TIME:	RECEIVED BY/STORED IN: STACY BOOWA 6-15-17	DATE/TIME: 9:05
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
(1) WTPH_DIESEL: COMMON {Total petroleum hydrocarbons - diesel range}; WTPH_KEROSENE: COMMON {Total petroleum hydrocarbons - kerosene range}; WTPH_MOTOR OIL: COMMON {Total petroleum hydrocarbons - motor oil (high boiling)};
(2) 8270_SVOA_GCMS: COMMON (Add-on) {Tributyl phosphate};
(3) GAMMA_GS: COMMON {Cesium-137}; AMCMISO_IE_PRECIP_AEA: COMMON {Americium-241}; PUISO_IE_PRECIP_AEA: COMMON {Plutonium-238, Plutonium-239/240}; UISO_IE_PRECIP_AEA: COMMON {Uranium-233/234, Uranium-235, Uranium-238}; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium};

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

PRINTED ON 1/4/2017 FSR ID = FSR40875 TRVL NUM = TRVL-17-057 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			FRC16-09-072	PAGE 1 OF 1
COLLECTOR: D. CLEGG	COMPANY CONTACT: NAGEL, SE	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: NAGEL, SE	PRICE CODE: 8C	DATA TURNAROUND
SAMPLING LOCATION: 316-4 Overburden Row 6 Section C Grab 2	PROJECT DESIGNATION: 316-4 Overburden/Layback Sampling - Soil		SAF NO.: FRC16-09	AIR QUALITY ☐	15 Days / 15 Days
ICE CHEST NO.: ERC-96-014	FIELD LOGBOOK NO.: HNF-N-880	ACTUAL SAMPLE DEPTH: N/A	COA: TRE 6-14-17 ~~304291~~ 304285	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: PTR# 8045		BILL OF LADING/AIR BILL NO.: Fed Ex 7794 0471 3579		

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
NA

PRESERVATION				Cool <=6C	Cool <=6C	None	None
HOLDING TIME				14/40 Days	14/40 Days	6 Months	6 Months
TYPE OF CONTAINER				G	aG	G/P	G/P
NO. OF CONTAINER(S)				1	1	1	1
VOLUME				125mL	125mL	60mL	1L
SAMPLE ANALYSIS				SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	6020_METALS_ICPMS: COMMON (Add-on) {Uranium};	SEE ITEM (3) IN SPECIAL INSTRUCTIONS
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B38JN5	SOIL	6/14/17	1025	✓	✓	✓	✓

425501

July 11, 2017

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: David Clegg	DATE/TIME: 6-14-17 1040	RECEIVED BY/STORED IN: RT Coffman/RT Coffman	DATE/TIME: 6/14/17 1040
RELINQUISHED BY/REMOVED FROM: RT Coffman/RT Coffman	DATE/TIME: 6/14/17 1200	RECEIVED BY/STORED IN: T.R. Edmundson T.R. Edmundson	DATE/TIME: 6-14-17 1200
RELINQUISHED BY/REMOVED FROM: PRC T.R. Edmundson T.R. Edmundson	DATE/TIME: 6-14-17 1500	RECEIVED BY/STORED IN: Fed Ex 6-14-17	DATE/TIME: —
RELINQUISHED BY/REMOVED FROM:	DATE/TIME: FEB 21	RECEIVED BY/STORED IN: Stacy Doone 6-15-17	DATE/TIME: 9:00
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
(1) WTPH_DIESEL: COMMON {Total petroleum hydrocarbons - diesel range}; WTPH_KEROSENE: COMMON {Total petroleum hydrocarbons - kerosene range}; WTPH_MOTOR OIL: COMMON {Total petroleum hydrocarbons - motor oil (high boiling)};
(2) 8270_SVOA_GCMS: COMMON (Add-on) {Tributyl phosphate};
(3) GAMMA_GS: COMMON {Cesium-137}; AMCMISO_IE_PRECIP_AEA: COMMON {Americium-241}; PUISO_IE_PRECIP_AEA: COMMON {Plutonium-238, Plutonium-239/240}; UISO_IE_PRECIP_AEA: COMMON {Uranium-233/234, Uranium-235, Uranium-238}; SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium};

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

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: CPRC	SDG/AR/COC/Work Order: 425501
Received By: Stacy Boone	Date Received: 6-15-17
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 7794 0470 3935 - 1'c 7793 9781 8328 1'c 7794 0471 3679 - 1'c

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?		✓	Hazard Class Shipped: UN#:
COC/Samples marked or classified as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): Ø CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
Is package, COC, and/or Samples marked HAZ?		✓	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?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP:_____
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR3-17 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	✓			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, Are Encores or Soil Kits present? Yes___ No___ (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes No___ N/A (If unknown, select No) VOA vials free of headspace? Yes No___ N/A Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials CS Date 6/16/17 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: 10−JUL−17

Project Specific Qualifier Definitions for GEL Client Code: CPRC

Qualifier	Qualifier Definition	Department	Fraction
U	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.		
J	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated	Organics	
P	Aroclor target analyte with greater than 25% difference between column analyses.	Organics	
C	Analyte has been confirmed by GC/MS analysis	Organics	Pesticide
B	The analyte was detected in both the associated QC blank and in the sample.	Organics	
E	Concentration exceeds the calibration range of the instrument	Organics	
A	The TIC is a suspected aldol−condensation product	Organics	Semi−Volatile
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
N	Spike Sample recovery is outside control limits.		
*	Duplicate analysis not within control limits	Inorganics	
>	Result greater than quantifiable range or greater than upper limit of the analysis range	General Chemistry	
Z	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
B	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	Inorganics	Metals
D	Results are reported from a diluted aliquot of sample.		
E	Reported value is estimated due to interferences. See comment in narrative.	Inorganics	Metals
M	Duplicate precision not met.	Inorganics	Metals
o	Analyte failed to recover within LCS limits (0rganics only)	Organics	
S	Reported value determined by the Method of Standard Additions (MSA)	Inorganics	
T	Spike and/or spike duplicate sample recovery is outside control limits.	Organics	
W	Post−digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.	Inorganics	
B	The associated QC sample blank has a result >= 2X the MDA and, after corrections, result is >= MDA for this sample	Radiological	
Y	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
+	Correlation coefficient for Method of Standard Additions (MSA) is < 0.995	Inorganics	
B	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	General Chemistry	
C	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	Inorganics	Metals
C	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	General Chemistry	
<	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide	General Chemistry	
UX	Gamma Spectroscopy−−Uncertain identification	Radiological	

Laboratory Certifications

List of current GEL Certifications as of 10 July 2017

State	Certification
Alaska	UST−0110
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA170010
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122017−1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	9904
Pennsylvania NELAP	68−00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−17−12
Utah NELAP	SC000122017−22
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Semi-Volatile Analysis

Case Narrative

GC/MS Semivolatile
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL425501
Work Order #: 425501

Product: **Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
Analytical Method: 8270_SVOA_GCMS
Analytical Procedure: GL-OA-E-009 REV# 39
Analytical Batch: 1674307

Preparation Method: SW846 3541
Preparation Procedure: GL-OA-E-066 REV# 8
Preparation Batch: 1674306

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

GEL Sample ID#	Client Sample Identification
425501001	B38JM8
425501002	B38JM9
425501003	B38JN0
425501004	B38JN1
425501005	B38JN2
425501006	B38JN3
425501007	B38JN4
425501008	B38JN5
1203812069	Method Blank (MB)
1203812070	Laboratory Control Sample (LCS)
1203812071	425501006(B38JN3) Matrix Spike (MS)
1203812072	425501006(B38JN3) Matrix Spike Duplicate (MSD)

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.

Miscellaneous Information

Manual Integrations
Samples 1203812070 (LCS), 1203812071 (B38JN3MS) and 1203812072 (B38JN3MSD) required manual integration in order to properly identify one or more peaks and/or to correctly position the baseline as set in the calibration standard injections.

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: GEL425501 GEL Work Order: 425501

The Qualifiers in this report are defined as follows:

T Spike and/or spike duplicate 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.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

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: Barbara Bailey **Name: Barbara Bailey**

Date: 10 JUL 2017 **Title: Data Validator**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Date Collected:**	**06/14/2017 09:30**	**Matrix:**	**SOIL**
Lab Sample ID:	**425501001**	**Date Received:**	**06/15/2017 09:05**	**%Moisture:**	**1.2**
		Client:	**CPRC001**	**Project:**	**CPRC0FRC1609**
Client ID:	**B38JM8**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1674307**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**06/23/2017 20:20**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/23/2017 10:03**	**Aliquot:**	**30.046 g**	**Final Volume:**	**1 mL**
Data File:	**s062317.B\s4f2320.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
126-73-8	Tributylphosphate	U	101	ug/kg	101	337

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Date Collected:**	**06/14/2017 09:40**	**Matrix:**	**SOIL**
Lab Sample ID:	**425501002**	**Date Received:**	**06/15/2017 09:05**	**%Moisture:**	**.9**
		Client:	**CPRC001**	**Project:**	**CPRC0FRC1609**
Client ID:	**B38JM9**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1674307**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**06/23/2017 20:44**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/23/2017 10:03**	**Aliquot:**	**30.059 g**	**Final Volume:**	**1 mL**
Data File:	**s062317.B\s4f2321.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
126-73-8	Tributylphosphate	U	101	ug/kg	101	336

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Date Collected:**	**06/14/2017 09:50**	**Matrix:**	**SOIL**
Lab Sample ID:	**425501003**	**Date Received:**	**06/15/2017 09:05**	**%Moisture:**	**1.8**
		Client:	**CPRC001**	**Project:**	**CPRC0FRC1609**
Client ID:	**B38JN0**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1674307**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**06/23/2017 21:08**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/23/2017 10:03**	**Aliquot:**	**30.029 g**	**Final Volume:**	**1 mL**
Data File:	**s062317.B\s4f2322.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
126-73-8	Tributylphosphate	U	102	ug/kg	102	339

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Date Collected:**	**06/14/2017 09:55**	**Matrix:**	**SOIL**
Lab Sample ID:	**425501004**	**Date Received:**	**06/15/2017 09:05**	**%Moisture:**	**1.7**
		Client:	**CPRC001**	**Project:**	**CPRC0FRC1609**
Client ID:	**B38JN1**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1674307**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**06/23/2017 21:32**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/23/2017 10:03**	**Aliquot:**	**30.049 g**	**Final Volume:**	**1 mL**
Data File:	**s062317.B\s4f2323.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
126-73-8	Tributylphosphate	U	102	ug/kg	102	338

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Date Collected:**	**06/14/2017 10:05**	**Matrix:**	**SOIL**
Lab Sample ID:	**425501005**	**Date Received:**	**06/15/2017 09:05**	**%Moisture:**	**1.5**
		Client:	**CPRC001**	**Project:**	**CPRC0FRC1609**
Client ID:	**B38JN2**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1674307**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**06/23/2017 21:57**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/23/2017 10:03**	**Aliquot:**	**30.005 g**	**Final Volume:**	**1 mL**
Data File:	**s062317.B\s4f2324.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
126-73-8	Tributylphosphate	U	101	ug/kg	101	338

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Date Collected:**	**06/14/2017 10:10**	**Matrix:**	**SOIL**
Lab Sample ID:	**425501006**	**Date Received:**	**06/15/2017 09:05**	**%Moisture:**	**1.8**
		Client:	**CPRC001**	**Project:**	**CPRC0FRC1609**
Client ID:	**B38JN3**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1674307**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**06/23/2017 17:54**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/23/2017 10:03**	**Aliquot:**	**30.065 g**	**Final Volume:**	**1 mL**
Data File:	**s062317.B\s4f2315.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
126-73-8	Tributylphosphate	U	102	ug/kg	102	339

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Date Collected:**	**06/14/2017 10:20**	**Matrix:**	**SOIL**
Lab Sample ID:	**425501007**	**Date Received:**	**06/15/2017 09:05**	**%Moisture:**	**2.6**
		Client:	**CPRC001**	**Project:**	**CPRC0FRC1609**
Client ID:	**B38JN4**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1674307**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**06/23/2017 22:21**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/23/2017 10:03**	**Aliquot:**	**30.073 g**	**Final Volume:**	**1 mL**
Data File:	**s062317.B\s4f2325.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
126-73-8	Tributylphosphate	U	102	ug/kg	102	342

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Date Collected:**	**06/14/2017 10:25**	**Matrix:**	**SOIL**
Lab Sample ID:	**425501008**	**Date Received:**	**06/15/2017 09:05**	**%Moisture:**	**2.7**
		Client:	**CPRC001**	**Project:**	**CPRC0FRC1609**
Client ID:	**B38JN5**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1674307**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**06/23/2017 22:45**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/23/2017 10:03**	**Aliquot:**	**30.041 g**	**Final Volume:**	**1 mL**
Data File:	**s062317.B\s4f2326.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
126-73-8	Tributylphosphate	U	103	ug/kg	103	342

Quality Control Summary

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

QC Summary

Report Date: June 28, 2017

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **425501**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatile-GC/MS										
Batch 1674307										
QC1203812070 LCS										
Tributylphosphate	1660			1490	ug/kg		90	(70%-130%)	JMB3	06/23/17 17:26
**2,4,6-Tribromophenol	3330			2860	ug/kg		86	(12%-129%)		
**2-Fluorobiphenyl	1660			1120	ug/kg		68	(15%-110%)		
**2-Fluorophenol	3330			2030	ug/kg		61	(10%-115%)		
**Nitrobenzene-d5	1660			1030	ug/kg		62	(13%-112%)		
**Phenol-d5	3330			2120	ug/kg		64	(15%-117%)		
**p-Terphenyl-d14	1660			1100	ug/kg		66	(24%-141%)		
QC1203812069 MB										
Tributylphosphate			U	100	ug/kg					06/23/17 16:55
**2,4,6-Tribromophenol	3330			2560	ug/kg		77	(12%-129%)		
**2-Fluorobiphenyl	1670			1170	ug/kg		70	(15%-110%)		
**2-Fluorophenol	3330			2170	ug/kg		65	(10%-115%)		
**Nitrobenzene-d5	1670			1130	ug/kg		68	(13%-112%)		
**Phenol-d5	3330			2180	ug/kg		65	(15%-117%)		

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QC Summary

Workorder: **425501**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatile-GC/MS											
Batch 1674307											
**p-Terphenyl-d14	1670				1200	ug/kg		72	(24%-141%)	JMB3	06/23/17 16:55
QC1203812071 425501006 MS											
Tributylphosphate	1690	U	102		1480	ug/kg		87	(25%-131%)		06/23/17 18:22
**2,4,6-Tribromophenol	3390		2760		2940	ug/kg		87	(12%-129%)		
**2-Fluorobiphenyl	1690		1180		1170	ug/kg		69	(15%-110%)		
**2-Fluorophenol	3390		2090		2160	ug/kg		64	(10%-115%)		
**Nitrobenzene-d5	1690		1120		1030	ug/kg		61	(13%-112%)		
**Phenol-d5	3390		2150		2220	ug/kg		65	(15%-117%)		
**p-Terphenyl-d14	1690		1210		1050	ug/kg		62	(24%-141%)		
QC1203812072 425501006 MSD											
Tributylphosphate	1690	U	102		1380	ug/kg	7	81	(0%-30%)		06/23/17 18:51
**2,4,6-Tribromophenol	3390		2760		2610	ug/kg		77	(12%-129%)		
**2-Fluorobiphenyl	1690		1180		931	ug/kg		55	(15%-110%)		
**2-Fluorophenol	3390		2090		1750	ug/kg		52	(10%-115%)		
**Nitrobenzene-d5	1690		1120		882	ug/kg		52	(13%-112%)		
**Phenol-d5	3390		2150		1820	ug/kg		54	(15%-117%)		

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QC Summary

Workorder: **425501**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch 1674307											
**p-Terphenyl-d14	1690	1210		1070	ug/kg		63	(24%-141%)	JMB3	06/23/17	18:51

Notes:

The Qualifiers in this report are defined as follows:

- A The TIC is a suspected aldol-condensation product
- B The analyte was detected in both the associated QC blank and in the sample.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- 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
- N Spike Sample recovery is outside control limits.
- P Aroclor target analyte with greater than 25% difference between column analyses.
- T Spike and/or spike duplicate 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
- o Analyte failed to recover within LCS limits (0rganics only)

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.

Semi-Volatile

Surrogate Recovery Report

SDG Number: GEL425501

Matrix Type: SOLID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1203812069	MB for batch 1674306	65	65	68	70	77	72
1203812070	LCS for batch 1674306	61	64	62	68	86	66
425501006	B38JN3	62	63	66	70	81	71
1203812071	B38JN3MS	64	65	61	69	87	62
1203812072	B38JN3MSD	52	54	52	55	77	63
425501001	B38JM8	56	58	61	63	53	61
425501002	B38JM9	60	61	66	70	53	75
425501003	B38JN0	60	60	65	68	50	75
425501004	B38JN1	51	51	56	58	42	57
425501005	B38JN2	55	55	58	64	44	62
425501007	B38JN4	54	56	56	64	48	67
425501008	B38JN5	52	54	54	53	47	60

Surrogate		Acceptance Limits
2FP	= 2-Fluorophenol	(10%-115%)
PHL	= Phenol-d5	(15%-117%)
NBZ	= Nitrobenzene-d5	(13%-112%)
FBP	= 2-Fluorobiphenyl	(15%-110%)
TBP	= 2,4,6-Tribromophenol	(12%-129%)
TPH	= p-Terphenyl-d14	(24%-141%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

FID Diesel Range Organics Analysis

Case Narrative

Diesel Range Organics
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL425501
Work Order #: 425501

Product: **Analysis of Diesel Range Organics by Flame Ionization Detector**
Analytical Method: WTPH_DIESEL
Analytical Procedure: GL-OA-E-003 REV# 29
Analytical Batch: 1673925

Preparation Method: SW846 3541
Preparation Procedure: GL-OA-E-010 REV# 26
Preparation Batch: 1673924

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

GEL Sample ID#	Client Sample Identification
425501001	B38JM8
425501002	B38JM9
425501003	B38JN0
425501004	B38JN1
425501005	B38JN2
425501006	B38JN3
425501007	B38JN4
425501008	B38JN5
1203811208	Method Blank (MB)
1203811209	Laboratory Control Sample (LCS)
1203811210	425386001(B38JM4) Matrix Spike (MS)
1203811211	425386001(B38JM4) Matrix Spike Duplicate (MSD)
1203811214	Laboratory Control Sample (LCS)
1203811215	Laboratory Control Sample Duplicate (LCSD)

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

Surrogate Recoveries
Samples (See Below) did not meet the client specified limits; however, the recoveries were within the lab's statistically derived limits. Outliers were expected and the data were reported.

Sample	Analyte	Value
1203811208 (MB)	o-Terphenyl	41* (60.0%-140.0%)
1203811214 (LCS)	o-Terphenyl	54* (60%-140%)

425501001 (B38JM8)	o-Terphenyl	57* (60%-140%)
425501003 (B38JN0)	o-Terphenyl	58* (60%-140%)
425501004 (B38JN1)	o-Terphenyl	57* (60%-140%)
425501005 (B38JN2)	o-Terphenyl	55* (60%-140%)
425501006 (B38JN3)	o-Terphenyl	58* (60%-140%)
425501008 (B38JN5)	o-Terphenyl	56* (60%-140%)

Laboratory Control Sample (LCS/LCSD) Recovery
LCS (See Below) did not meet the client specified limits; however, the recoveries were within the lab's statistically derived limits. Outliers were expected and the data were reported.

Sample	Analyte	Value
1203811209 (LCS)	Diesel Range Organics	69* (70%-130%)
1203811214 (LCS)	Kerosene	47* (70.0%-130.0%)
1203811215 (LCSD)	Kerosene	58* (70.0%-130.0%)

Matrix Spike (MS/MSD) Recovery Statement
The MSD spike recovery was slightly below the acceptance limits.

Sample	Analyte	Value
1203811211 (B38JM4MSD)	Diesel Range Organics	67* (70%-130%)

Miscellaneous Information

Manual Integrations
Samples 1203811209 (LCS), 1203811210 (B38JM4MS) and 1203811211 (B38JM4MSD) required manual integration to correctly position the baseline as set in the calibration standard injections.

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

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Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL425501 GEL Work Order: 425501

The Qualifiers in this report are defined as follows:

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

T Spike and/or spike duplicate 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.

DL Indicates that sample is diluted.

RA Indicates that sample is re-analyzed without re-extraction.

RE Indicates that sample is re-extracted.

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: Jimin Cao **Name: Jimin Cao**

Date: 10 JUL 2017 **Title: Data Validator**

Sample Data Summary

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Date Collected:**	**06/14/2017 09:30**	**Matrix:**	**SOIL**
Lab Sample ID:	**425501001**	**Date Received:**	**06/15/2017 09:05**	**%Moisture:**	**1.2**
		Client:	**CPRC001**	**Project:**	**CPRC0FRC1609**
Client ID:	**B38JM8**	**Method:**	**WTPH_DIESEL**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1673925**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**06/20/2017 09:23**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/19/2017 10:42**	**Aliquot:**	**30.32 g**	**Final Volume:**	**1 mL**
Data File:	**061917-KERO-MO\f7F1933.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
68334-30-5	Diesel Range Organics	TU	2170	UG/KG	2170	6680
8008-20-6	Kerosene	U	1110	UG/KG	1110	6680
	Motor Oil	U	2170	UG/KG	2170	6680

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Date Collected:**	**06/14/2017 09:40**	**Matrix:**	**SOIL**
Lab Sample ID:	**425501002**	**Date Received:**	**06/15/2017 09:05**	**%Moisture:**	**.9**
		Client:	**CPRC001**	**Project:**	**CPRC0FRC1609**
Client ID:	**B38JM9**	**Method:**	**WTPH_DIESEL**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1673925**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**06/20/2017 10:02**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/19/2017 10:42**	**Aliquot:**	**30.54 g**	**Final Volume:**	**1 mL**
Data File:	**061917-KERO-MO\f7F1934.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
68334-30-5	Diesel Range Organics	TU	2150	UG/KG	2150	6610
8008-20-6	Kerosene	U	1100	UG/KG	1100	6610
	Motor Oil	J	2190	UG/KG	2150	6610

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Date Collected:**	**06/14/2017 09:50**	**Matrix:**	**SOIL**
Lab Sample ID:	**425501003**	**Date Received:**	**06/15/2017 09:05**	**%Moisture:**	**1.8**
		Client:	**CPRC001**	**Project:**	**CPRC0FRC1609**
Client ID:	**B38JN0**	**Method:**	**WTPH_DIESEL**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1673925**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**06/20/2017 10:42**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/19/2017 10:42**	**Aliquot:**	**30.13 g**	**Final Volume:**	**1 mL**
Data File:	**061917-KERO-MO\f7F1935.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
68334-30-5	Diesel Range Organics	TU	2200	UG/KG	2200	6760
8008-20-6	Kerosene	U	1130	UG/KG	1130	6760
	Motor Oil	J	6280	UG/KG	2200	6760

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Date Collected:**	**06/14/2017 09:55**	**Matrix:**	**SOIL**
Lab Sample ID:	**425501004**	**Date Received:**	**06/15/2017 09:05**	**%Moisture:**	**1.7**
		Client:	**CPRC001**	**Project:**	**CPRC0FRC1609**
Client ID:	**B38JN1**	**Method:**	**WTPH_DIESEL**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1673925**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**06/20/2017 11:21**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/19/2017 10:42**	**Aliquot:**	**30.48 g**	**Final Volume:**	**1 mL**
Data File:	**061917-KERO-MO\f7F1936.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
68334-30-5	Diesel Range Organics	TU	2170	UG/KG	2170	6670
8008-20-6	Kerosene	U	1110	UG/KG	1110	6670
	Motor Oil	U	2170	UG/KG	2170	6670

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Date Collected:**	**06/14/2017 10:05**	**Matrix:**	**SOIL**
Lab Sample ID:	**425501005**	**Date Received:**	**06/15/2017 09:05**	**%Moisture:**	**1.5**
		Client:	**CPRC001**	**Project:**	**CPRC0FRC1609**
Client ID:	**B38JN2**	**Method:**	**WTPH_DIESEL**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1673925**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**06/20/2017 12:00**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/19/2017 10:42**	**Aliquot:**	**30.16 g**	**Final Volume:**	**1 mL**
Data File:	**061917-KERO-MO\f7F1937.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
68334-30-5	Diesel Range Organics	TU	2190	UG/KG	2190	6730
8008-20-6	Kerosene	U	1120	UG/KG	1120	6730
	Motor Oil	U	2190	UG/KG	2190	6730

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Date Collected:**	**06/14/2017 10:10**	**Matrix:**	**SOIL**
Lab Sample ID:	**425501006**	**Date Received:**	**06/15/2017 09:05**	**%Moisture:**	**1.8**
		Client:	**CPRC001**	**Project:**	**CPRC0FRC1609**
Client ID:	**B38JN3**	**Method:**	**WTPH_DIESEL**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1673925**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**06/20/2017 12:39**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/19/2017 10:42**	**Aliquot:**	**30.11 g**	**Final Volume:**	**1 mL**
Data File:	**061917-KERO-MO\f7F1938.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
68334-30-5	Diesel Range Organics	TU	2200	UG/KG	2200	6760
8008-20-6	Kerosene	U	1130	UG/KG	1130	6760
	Motor Oil	J	3880	UG/KG	2200	6760

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Date Collected:**	**06/14/2017 10:20**	**Matrix:**	**SOIL**
Lab Sample ID:	**425501007**	**Date Received:**	**06/15/2017 09:05**	**%Moisture:**	**2.6**
		Client:	**CPRC001**	**Project:**	**CPRC0FRC1609**
Client ID:	**B38JN4**	**Method:**	**WTPH_DIESEL**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1673925**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**06/20/2017 13:19**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/19/2017 10:42**	**Aliquot:**	**30.21 g**	**Final Volume:**	**1 mL**
Data File:	**061917-KERO-MO\f7F1939.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
68334-30-5	Diesel Range Organics	TU	2210	UG/KG	2210	6800
8008-20-6	Kerosene	U	1130	UG/KG	1130	6800
	Motor Oil	J	2980	UG/KG	2210	6800

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Date Collected:**	**06/14/2017 10:25**	**Matrix:**	**SOIL**
Lab Sample ID:	**425501008**	**Date Received:**	**06/15/2017 09:05**	**%Moisture:**	**2.7**
		Client:	**CPRC001**	**Project:**	**CPRC0FRC1609**
Client ID:	**B38JN5**	**Method:**	**WTPH_DIESEL**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1673925**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**06/20/2017 13:58**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/19/2017 10:42**	**Aliquot:**	**30.26 g**	**Final Volume:**	**1 mL**
Data File:	**061917-KERO-MO\f7F1940.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
68334-30-5	Diesel Range Organics	TU	2210	UG/KG	2210	6790
8008-20-6	Kerosene	U	1130	UG/KG	1130	6790
	Motor Oil	U	2210	UG/KG	2210	6790

Quality Control Summary

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

QC Summary

Report Date: June 23, 2017

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **425501**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Diesel Range Organics										
Batch 1673925										
QC1203811209 LCS										
Diesel Range Organics	66600			45800	UG/KG		69*	(70%-130%)	LXA1	06/20/17 00:17
Motor Oil	66600			51600	UG/KG		77	(70%-130%)		
**o-Terphenyl	666			443	UG/KG		67	(60%-140%)		
QC1203811214 LCS										
Kerosene	33300			15700	UG/KG		47*	(70%-130%)		06/20/17 00:56
**o-Terphenyl	666			360	UG/KG		54*	(60%-140%)		
QC1203811215 LCSD										
Kerosene	33300			19300	UG/KG	21	58*	(0%-30%)		06/20/17 01:35
**o-Terphenyl	666			415	UG/KG		62	(60%-140%)		
QC1203811208 MB										
Diesel Range Organics			U	2160	UG/KG					06/19/17 23:38
Kerosene			U	1110	UG/KG					
Motor Oil			U	2160	UG/KG					
**o-Terphenyl	666			273	UG/KG		41*	(60%-140%)		
QC1203811210 425386001 MS										
Diesel Range Organics	67700	TU	2200	57100	UG/KG		84	(70%-130%)		06/20/17 04:11

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

QC Summary

Workorder: **425501**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Diesel Range Organics											
Batch 1673925											
Motor Oil	67700	J	3300		65200	UG/KG		91	(70%-130%)	LXA1	06/20/17 04:11
**o-Terphenyl	677		426		513	UG/KG		76	(60%-140%)		
QC1203811211 425386001 MSD											
Diesel Range Organics	67500	TU	2200	T	45100	UG/KG	23	67*	(0%-30%)		06/20/17 04:50
Motor Oil	67500	J	3300		52000	UG/KG	22	72	(0%-30%)		
**o-Terphenyl	675		426		431	UG/KG		64	(60%-140%)		

Notes:

The Qualifiers in this report are defined as follows:

- A The TIC is a suspected aldol-condensation product
- B The analyte was detected in both the associated QC blank and in the sample.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- 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
- N Spike Sample recovery is outside control limits.
- P Aroclor target analyte with greater than 25% difference between column analyses.
- T Spike and/or spike duplicate 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
- o Analyte failed to recover within LCS limits (0rganics only)

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.

July 11, 2017

FID Diesel Range Organics

Surrogate Recovery Report

SDG Number: GEL425501

Matrix Type: SOLID

Sample ID	Client ID	OTP %REC
1203811208	MB for batch 1673924	41 *
1203811209	LCS for batch 1673924	67
1203811214	LCS for batch 1673924	54 *
1203811215	LCSD for batch 1673924	62
1203811210	B38JM4MS	76
1203811211	B38JM4MSD	64
425501001	B38JM8	57 *
425501002	B38JM9	62
425501003	B38JN0	58 *
425501004	B38JN1	57 *
425501005	B38JN2	55 *
425501006	B38JN3	58 *
425501007	B38JN4	65
425501008	B38JN5	56 *

Surrogate	Acceptance Limits
OTP = o-Terphenyl	(60%-140%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL425501
Work Order #: 425501

Product: **Determination of Metals by ICP-MS**
Analytical Method: SW846 3050B/6020B
Analytical Procedure: GL-MA-E-014 REV# 29
Analytical Batch: 1674488

Preparation Method: SW846 3050B
Preparation Procedure: GL-MA-E-009 REV# 26
Preparation Batch: 1674487

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

GEL Sample ID#	Client Sample Identification
425501001	B38JM8
425501002	B38JM9
425501003	B38JN0
425501004	B38JN1
425501005	B38JN2
425501006	B38JN3
425501007	B38JN4
425501008	B38JN5
1203812481	Method Blank (MB)**ICP-MS**
1203812482	Laboratory Control Sample (LCS)
1203812485	425501001(B38JM8L) Serial Dilution (SD)
1203812483	425501001(B38JM8D) Sample Duplicate (DUP)
1203812484	425501001(B38JM8S) 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.

Calibration Information

ICSA/ICSAB Statement
For the ICP-MS analysis, the ICSA solution contains analyte concentrations which are verified trace impurities indigenous to the purchased standard.

Technical Information

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

Sample Dilutions

Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range. The ICPMS solid samples in this SDG were diluted the standard two times.

Analyte	425501							
	001	**002**	**003**	**004**	**005**	**006**	**007**	**008**
Uranium	2X	2X	2X	2X	2X	2X	2X	2X

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: GEL425501 GEL Work Order: 425501

The Qualifiers in this report are defined as follows:

* Duplicate analysis not within control limits

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).

D Results are reported from a diluted aliquot of sample.

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

Review/Validation

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

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

Signature: Nik-Cole A. Elmore **Name: Nik-Cole Elmore**

Date: 28 JUN 2017 **Title: Data Validator**

Sample Data Summary

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL425501 **CONTRACT:** CPRC0FRC1609 **METHOD TYPE:** SW846

SAMPLE ID: 425501001 **BASIS:** Dry Weight **DATE COLLECTED** 14−JUN−17

CLIENT ID: B38JM8 **LEVEL:** Low **DATE RECEIVED** 15−JUN−17

MATRIX: SOIL **%SOLIDS:** 98.8

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−61−1	Uranium	372	ug/kg	D	12.7	38.4	38.4	2	MS	SKJ	06/19/17 23:55	170619−1	1674488

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1674488	1674487	SW846 3050B	0.527	g	50	mL	06/17/17	SXW1

***Analytical Methods:**

MS **SW846 3050B/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL425501 **CONTRACT:** CPRC0FRC1609 **METHOD TYPE:** SW846

SAMPLE ID: 425501002 **BASIS:** Dry Weight **DATE COLLECTED** 14−JUN−17

CLIENT ID: B38JM9 **LEVEL:** Low **DATE RECEIVED** 15−JUN−17

MATRIX: SOIL **%SOLIDS:** 99.08

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−61−1	Uranium	406	ug/kg	D	12.4	37.4	37.4	2	MS	SKJ	06/20/17 00:23	170619−1	1674488

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1674488	1674487	SW846 3050B	0.539	g	50	mL	06/17/17	SXW1

***Analytical Methods:**

MS **SW846 3050B/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL425501 **CONTRACT:** CPRC0FRC1609 **METHOD TYPE:** SW846

SAMPLE ID: 425501003 **BASIS:** Dry Weight **DATE COLLECTED** 14−JUN−17

CLIENT ID: B38JN0 **LEVEL:** Low **DATE RECEIVED** 15−JUN−17

MATRIX: SOIL **%SOLIDS:** 98.2

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−61−1	Uranium	353	ug/kg	D	13.4	40.6	40.6	2	MS	SKJ	06/20/17 00:27	170619−1	1674488

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1674488	1674487	SW846 3050B	0.502	g	50	mL	06/17/17	SXW1

***Analytical Methods:**

MS **SW846 3050B/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL425501 **CONTRACT:** CPRC0FRC1609 **METHOD TYPE:** SW846

SAMPLE ID: 425501004 **BASIS:** Dry Weight **DATE COLLECTED** 14−JUN−17

CLIENT ID: B38JN1 **LEVEL:** Low **DATE RECEIVED** 15−JUN−17

MATRIX: SOIL **%SOLIDS:** 98.3

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−61−1	Uranium	524	ug/kg	D	13	39.4	39.4	2	MS	SKJ	06/20/17 00:31	170619−1	1674488

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1674488	1674487	SW846 3050B	0.516	g	50	mL	06/17/17	SXW1

***Analytical Methods:**

MS **SW846 3050B/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL425501 **CONTRACT:** CPRC0FRC1609 **METHOD TYPE:** SW846

SAMPLE ID: 425501005 **BASIS:** Dry Weight **DATE COLLECTED** 14−JUN−17

CLIENT ID: B38JN2 **LEVEL:** Low **DATE RECEIVED** 15−JUN−17

MATRIX: SOIL **%SOLIDS:** 98.5

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−61−1	Uranium	320	ug/kg	D	13.1	39.6	39.6	2	MS	SKJ	06/20/17 00:34	170619−1	1674488

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1674488	1674487	SW846 3050B	0.512	g	50	mL	06/17/17	SXW1

***Analytical Methods:**

MS **SW846 3050B/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL425501 **CONTRACT:** CPRC0FRC1609 **METHOD TYPE:** SW846

SAMPLE ID: 425501006 **BASIS:** Dry Weight **DATE COLLECTED** 14−JUN−17

CLIENT ID: B38JN3 **LEVEL:** Low **DATE RECEIVED** 15−JUN−17

MATRIX: SOIL **%SOLIDS:** 98.2

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−61−1	Uranium	507	ug/kg	D	12.4	37.6	37.6	2	MS	SKJ	06/20/17 00:38	170619−1	1674488

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1674488	1674487	SW846 3050B	0.541	g	50	mL	06/17/17	SXW1

***Analytical Methods:**

MS **SW846 3050B/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL425501 **CONTRACT:** CPRC0FRC1609 **METHOD TYPE:** SW846

SAMPLE ID: 425501007 **BASIS:** Dry Weight **DATE COLLECTED** 14−JUN−17

CLIENT ID: B38JN4 **LEVEL:** Low **DATE RECEIVED** 15−JUN−17

MATRIX: SOIL **%SOLIDS:** 97.4

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−61−1	Uranium	376	ug/kg	D	12.4	37.5	37.5	2	MS	SKJ	06/20/17 00:42	170619−1	1674488

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1674488	1674487	SW846 3050B	0.548	g	50	mL	06/17/17	SXW1

***Analytical Methods:**

MS **SW846 3050B/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL425501 **CONTRACT:** CPRC0FRC1609 **METHOD TYPE:** SW846

SAMPLE ID: 425501008 **BASIS:** Dry Weight **DATE COLLECTED** 14−JUN−17

CLIENT ID: B38JN5 **LEVEL:** Low **DATE RECEIVED** 15−JUN−17

MATRIX: SOIL **%SOLIDS:** 97.3

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−61−1	Uranium	533	ug/kg	D	13.3	40.2	40.2	2	MS	SKJ	06/20/17 00:46	170619−1	1674488

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1674488	1674487	SW846 3050B	0.511	g	50	mL	06/17/17	SXW1

***Analytical Methods:**

MS **SW846 3050B/6020B**

Quality Control Summary

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

QC Summary

Report Date: June 28, 2017

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **425501**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS											
Batch 1674488											
QC1203812483 425501001 DUP											
Uranium		D	372	D	447	ug/kg	18.3		(0%-20%)	SKJ	06/19/17 23:59
QC1203812482 LCS											
Uranium	4870			D	4680	ug/kg		96	(80%-120%)		06/19/17 23:51
QC1203812481 MB											
Uranium				DU	12.6	ug/kg					06/19/17 23:47
QC1203812484 425501001 MS											
Uranium	4980	D	372	D	5110	ug/kg		95	(75%-125%)		06/20/17 00:03
QC1203812485 425501001 SDILT											
Uranium		D	1.94	D	0.396	ug/L	2.22		(0%-20%)		06/20/17 00:11

Notes:

The Qualifiers in this report are defined as follows:

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

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

QC Summary

Workorder: **425501**

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

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 #: GEL425501
Work Order #: 425501

Product: **AMCMISO_EIE_PRECIP_AEA: COMMON**
Analytical Method: AMCMISO_EIE_PREC_AEA
Analytical Procedure: GL-RAD-A-011 REV# 26
Analytical Batch: 1674448

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 21
Preparation Batch: 1674288

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

GEL Sample ID#	Client Sample Identification
425501001	B38JM8
425501002	B38JM9
425501003	B38JN0
425501004	B38JN1
425501005	B38JN2
425501006	B38JN3
425501007	B38JN4
425501008	B38JN5
1203812393	Method Blank (MB)
1203812394	425386001(B38JM4) Sample Duplicate (DUP)
1203812395	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 425501004 (B38JN1) recounted due to high carrier/tracer yield. Sample was then recounted again due to high carrier/tracer yield. The third count is reported.

Product: **PUISO_PRECIP_AEA:COMMON**
Analytical Method: PUISO_PRECIP_AEA

Analytical Procedure: GL-RAD-A-011 REV# 26
Analytical Batch: 1674454

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 21
Preparation Batch: 1674288

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

GEL Sample ID#	Client Sample Identification
425501001	B38JM8
425501002	B38JM9
425501003	B38JN0
425501004	B38JN1
425501005	B38JN2
425501006	B38JN3
425501007	B38JN4
425501008	B38JN5
1203812407	Method Blank (MB)
1203812408	425386001(B38JM4) Sample Duplicate (DUP)
1203812409	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 425501007 (B38JN4) and 425501008 (B38JN5) were recounted due to a peak shift. The recounts are reported.

Miscellaneous Information

1. Samples 425386002, 425501004, 425501006, 425501008, and 1203812407 do not meet the resolution requirement of having a full width half maximum of 100 keV or less for the Pu-242 tracer. 2. The Pu-242 tracer peak centroid for sample 425501007 is greater than 50 keV from the expected energy value of 4890 keV. 1. The samples do meet the tracer yield requirement, the detection limits, and their tracer peaks are within the Pu-242 region of interest. Reporting results. 2. The sample does meet the tracer yield requirement, the detection limits, and its tracer peak is within the Pu-242 region of interest. Reporting results.

Product: **UISO_IE_PRECIP_AEA:COMMON**
Analytical Method: UISO_IE_PRECIP_AEA
Analytical Procedure: GL-RAD-A-011 REV# 26
Analytical Batch: 1674457

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 21

Preparation Batch: 1674288

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

GEL Sample ID#	Client Sample Identification
425501001	B38JM8
425501002	B38JM9
425501003	B38JN0
425501004	B38JN1
425501005	B38JN2
425501006	B38JN3
425501007	B38JN4
425501008	B38JN5
1203812415	Method Blank (MB)
1203812416	425386001(B38JM4) Sample Duplicate (DUP)
1203812417	Laboratory Control Sample (LCS)

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.

Product: **Dry Weight**
Analytical Method: Dry Soil Prep
Analytical Procedure: GL-OA-E-020 REV# 11
Analytical Batch: 1674288

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

GEL Sample ID#	Client Sample Identification
425501001	B38JM8
425501002	B38JM9
425501003	B38JN0
425501004	B38JN1
425501005	B38JN2
425501006	B38JN3
425501007	B38JN4
425501008	B38JN5
1203812033	425501001(B38JM8) 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: 1674373

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 21
Preparation Batch: 1674288

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

GEL Sample ID#	Client Sample Identification
425501001	B38JM8
425501002	B38JM9
425501003	B38JN0
425501004	B38JN1
425501005	B38JN2
425501006	B38JN3
425501007	B38JN4
425501008	B38JN5
1203812233	Method Blank (MB)
1203812234	425501001(B38JM8) Sample Duplicate (DUP)
1203812235	Laboratory Control Sample (LCS)

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.

Product: **SRTOT_SEP_PRECIP_GPC: COMMON**
Analytical Method: SRTOT_SEP_PRECIP_GPC
Analytical Procedure: GL-RAD-A-004 REV# 18
Analytical Batch: 1675233

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 21
Preparation Batch: 1674288

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

GEL Sample ID#	Client Sample Identification

425501001	B38JM8
425501002	B38JM9
425501003	B38JN0
425501004	B38JN1
425501005	B38JN2
425501006	B38JN3
425501007	B38JN4
425501008	B38JN5
1203814267	Method Blank (MB)
1203814268	425386001(B38JM4) Sample Duplicate (DUP)
1203814269	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 1203814268 (B38JM4DUP), 425501003 (B38JN0), 425501004 (B38JN1) and 425501008 (B38JN5) were recounted due to results more negative than the three sigma TPU. The second counts are 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: GEL425501 GEL Work Order: 425501

The Qualifiers in this report are defined as follows:

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

Review/Validation

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

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

Signature: **Name: Spencer Collins**

Date: 07 JUL 2017 **Title: Analyst I**

Sample Data Summary

Rad

Certificate of Analysis

Sample Summary

SDG Number:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501001**	**Date Collected:**	**06/14/2017 09:30**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.2**
Client ID:	**B38JM8**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674448**	**Method:**	**AMCMISO_EIE_PREC_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/21/2017 09:08**	**Analyst:**	**BXA4**	**Instrument:**	**1099**
Data File:	**S0425501001_AM.1A.gcnf**	**Aliquot:**	**0.101 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1674448**	**Prep Method:**	**DOE EML HASL-300, Am-05**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	-0.0927	pCi/g	+/-0.131	0.131	0.428	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	19.6	20.8	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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501001**	**Date Collected:**	**06/14/2017 09:30**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.2**
Client ID:	**B38JM8**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674454**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/20/2017 16:28**	**Analyst:**	**BXA4**	**Instrument:**	**1108**
Data File:	**S0425501001_PU.1A.gcnf**	**Aliquot:**	**0.101 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1674454**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.192	pCi/g	+/-0.377	0.378	0.523	1.00
OER-100-70	Plutonium-239/240	U	0.0828	pCi/g	+/-0.311	0.311	0.523	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	9.61	19.5	pCi/g	49.3	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501001**	**Date Collected:**	**06/14/2017 09:30**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.2**
Client ID:	**B38JM8**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674457**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/21/2017 08:43**	**Analyst:**	**BXA4**	**Instrument:**	**1020**
Data File:	**S0425501001_UU.1A.gcnf**	**Aliquot:**	**0.101 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1674457**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234		0.405	pCi/g	+/-0.363	0.367	0.394	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.00	pCi/g	+/-0.161	0.161	0.239	1.00
7440-61-1	Uranium-238	U	0.147	pCi/g	+/-0.260	0.261	0.394	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	19.5	20.7	pCi/g	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.

Rad

Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501001**	**Date Collected:**	**06/14/2017 09:30**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.2**
Client ID:	**B38JM8**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1675233**	**Method:**	**SRTOT_SEP_PRECIP_GPC**	**SOP Ref:**	**GL-RAD-A-004**
Run Date:	**06/26/2017 15:49**	**Analyst:**	**JXB7**	**Instrument:**	**PIC6B**
Data File:	**S1675233r.xls**	**Aliquot:**	**0.32 g**	**Count Time:**	**60 min**
Prep Batch:	**1675233**	**Prep Method:**	**EPA 905.0 Modified/DOE RP5**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/22/2017 09:05**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	1.21	pCi/g	+/-0.939	0.987	1.50	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.60	7.75	mg	98.1	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501001**	**Date Collected:**	**06/14/2017 09:30**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.2**
Client ID:	**B38JM8**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674373**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**06/29/2017 06:59**	**Analyst:**	**MXR1**	**Instrument:**	**GAM14**
Data File:	**G425501001.CNF;1**	**Aliquot:**	**42.06 g**	**Count Time:**	**120 min**
Prep Batch:	**1674373**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/16/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	-0.00596	pCi/g	+/-0.0363	0.0364	0.0658	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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501001**	**Date Collected:**	**06/14/2017 09:30**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.2**

Rad

Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501002**	**Date Collected:**	**06/14/2017 09:40**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**.9**
Client ID:	**B38JM9**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674448**	**Method:**	**AMCMISO_EIE_PREC_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/21/2017 09:08**	**Analyst:**	**BXA4**	**Instrument:**	**1100**
Data File:	**S0425501002_AM.1A.gcnf**	**Aliquot:**	**0.1 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1674448**	**Prep Method:**	**DOE EML HASL-300, Am-05**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	-0.136	pCi/g	+/-0.235	0.235	0.666	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	19.9	21.0	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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501002**	**Date Collected:**	**06/14/2017 09:40**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**.9**
Client ID:	**B38JM9**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674454**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/20/2017 16:28**	**Analyst:**	**BXA4**	**Instrument:**	**1109**
Data File:	**S0425501002_PU.1A.gcnf**	**Aliquot:**	**0.1 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1674454**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.0212	pCi/g	+/-0.221	0.221	0.462	1.00
OER-100-70	Plutonium-239/240	U	0.172	pCi/g	+/-0.305	0.305	0.461	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	13.6	19.7	pCi/g	69.2	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501002**	**Date Collected:**	**06/14/2017 09:40**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**.9**
Client ID:	**B38JM9**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674457**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/21/2017 08:43**	**Analyst:**	**BXA4**	**Instrument:**	**1021**
Data File:	**S0425501002_UU.1A.gcnf**	**Aliquot:**	**0.1 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1674457**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234	U	0.273	pCi/g	+/-0.345	0.347	0.429	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.00	pCi/g	+/-0.193	0.193	0.287	1.00
7440-61-1	Uranium-238		0.446	pCi/g	+/-0.405	0.410	0.371	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	17.5	20.9	pCi/g	84.1	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501002**	**Date Collected:**	**06/14/2017 09:40**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**.9**
Client ID:	**B38JM9**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1675233**	**Method:**	**SRTOT_SEP_PRECIP_GPC**	**SOP Ref:**	**GL-RAD-A-004**
Run Date:	**06/26/2017 15:49**	**Analyst:**	**JXB7**	**Instrument:**	**PIC6C**
Data File:	**S1675233r.xls**	**Aliquot:**	**0.31 g**	**Count Time:**	**110 min**
Prep Batch:	**1675233**	**Prep Method:**	**EPA 905.0 Modified/DOE RP5**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/22/2017 09:05**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	-0.408	pCi/g	+/-0.821	0.821	1.52	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.50	7.75	mg	96.8	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501002**	**Date Collected:**	**06/14/2017 09:40**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**.9**
Client ID:	**B38JM9**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674373**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**06/29/2017 07:00**	**Analyst:**	**MXR1**	**Instrument:**	**GAM28**
Data File:	**G425501002.CNF;1**	**Aliquot:**	**53 g**	**Count Time:**	**120 min**
Prep Batch:	**1674373**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/16/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.00477	pCi/g	+/-0.0265	0.0266	0.0507	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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501002**	**Date Collected:**	**06/14/2017 09:40**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**.9**

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501003**	**Date Collected:**	**06/14/2017 09:50**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.8**
Client ID:	**B38JN0**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674448**	**Method:**	**AMCMISO_EIE_PREC_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/21/2017 09:08**	**Analyst:**	**BXA4**	**Instrument:**	**1102**
Data File:	**S0425501003_AM.1A.gcnf**	**Aliquot:**	**0.105 g**	**Count Time:**	**240 min**
Prep Batch:	**1674448**	**Prep Method:**	**DOE EML HASL-300, Am-05**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.144	pCi/g	+/-0.229	0.230	0.317	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	19.9	20.0	pCi/g	99.7	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501003**	**Date Collected:**	**06/14/2017 09:50**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.8**
Client ID:	**B38JN0**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674454**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/20/2017 16:28**	**Analyst:**	**BXA4**	**Instrument:**	**1110**
Data File:	**S0425501003_PU.1A.gcnf**	**Aliquot:**	**0.105 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1674454**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.00	pCi/g	+/-0.143	0.144	0.213	1.00
OER-100-70	Plutonium-239/240	U	0.00285	pCi/g	+/-0.211	0.211	0.469	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	14.7	18.7	pCi/g	78.6	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501003**	**Date Collected:**	**06/14/2017 09:50**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.8**
Client ID:	**B38JN0**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674457**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/21/2017 08:43**	**Analyst:**	**BXA4**	**Instrument:**	**1022**
Data File:	**S0425501003_UU.1A.gcnf**	**Aliquot:**	**0.105 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1674457**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234	U	0.0735	pCi/g	+/-0.230	0.231	0.431	1.00
15117-96-1/13982-7	Uranium-235/236	U	-0.066	pCi/g	+/-0.153	0.153	0.453	1.00
7440-61-1	Uranium-238		0.556	pCi/g	+/-0.363	0.370	0.167	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	19.2	19.9	pCi/g	96.9	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501003**	**Date Collected:**	**06/14/2017 09:50**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.8**
Client ID:	**B38JN0**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1675233**	**Method:**	**SRTOT_SEP_PRECIP_GPC**	**SOP Ref:**	**GL-RAD-A-004**
Run Date:	**06/27/2017 13:12**	**Analyst:**	**JXB7**	**Instrument:**	**PIC1C**
Data File:	**S1675233r.xls**	**Aliquot:**	**0.32 g**	**Count Time:**	**60 min**
Prep Batch:	**1675233**	**Prep Method:**	**EPA 905.0 Modified/DOE RP5**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/22/2017 09:05**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	-0.156	pCi/g	+/-0.535	0.535	1.10	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	6.10	7.75	mg	78.7	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501003**	**Date Collected:**	**06/14/2017 09:50**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.8**
Client ID:	**B38JN0**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674373**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**06/29/2017 07:47**	**Analyst:**	**MXR1**	**Instrument:**	**GAM03**
Data File:	**G425501003.CNF;1**	**Aliquot:**	**52.53 g**	**Count Time:**	**120 min**
Prep Batch:	**1674373**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/16/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.0161	pCi/g	+/-0.0338	0.0346	0.065	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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501003**	**Date Collected:**	**06/14/2017 09:50**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.8**

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Certificate of Analysis

Sample Summary

SDG Number:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501004**	**Date Collected:**	**06/14/2017 09:55**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.7**
Client ID:	**B38JN1**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674448**	**Method:**	**AMCMISO_EIE_PREC_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/22/2017 10:28**	**Analyst:**	**BXA4**	**Instrument:**	**1103**
Data File:	**S0425501004_AM.2B.gcnf**	**Aliquot:**	**0.101 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1674448**	**Prep Method:**	**DOE EML HASL-300, Am-05**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.204	pCi/g	+/-0.259	0.260	0.321	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	20.3	20.8	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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501004**	**Date Collected:**	**06/14/2017 09:55**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.7**
Client ID:	**B38JN1**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674454**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/20/2017 16:28**	**Analyst:**	**BXA4**	**Instrument:**	**1112**
Data File:	**S0425501004_PU.1A.gcnf**	**Aliquot:**	**0.101 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1674454**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	-0.0478	pCi/g	+/-0.144	0.145	0.406	1.00
OER-100-70	Plutonium-239/240	U	0.085	pCi/g	+/-0.234	0.234	0.406	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	16.0	19.5	pCi/g	82.2	(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.

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Certificate of Analysis

Sample Summary

SDG Number:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501004**	**Date Collected:**	**06/14/2017 09:55**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.7**
Client ID:	**B38JN1**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674457**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/21/2017 08:43**	**Analyst:**	**BXA4**	**Instrument:**	**1023**
Data File:	**S0425501004_UU.1A.gcnf**	**Aliquot:**	**0.101 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1674457**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234		0.652	pCi/g	+/-0.413	0.422	0.290	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.0748	pCi/g	+/-0.210	0.211	0.225	1.00
7440-61-1	Uranium-238		0.698	pCi/g	+/-0.431	0.440	0.335	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	21.4	20.7	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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501004**	**Date Collected:**	**06/14/2017 09:55**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.7**
Client ID:	**B38JN1**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1675233**	**Method:**	**SRTOT_SEP_PRECIP_GPC**	**SOP Ref:**	**GL-RAD-A-004**
Run Date:	**06/27/2017 13:12**	**Analyst:**	**JXB7**	**Instrument:**	**PIC1D**
Data File:	**S1675233r.xls**	**Aliquot:**	**0.303 g**	**Count Time:**	**60 min**
Prep Batch:	**1675233**	**Prep Method:**	**EPA 905.0 Modified/DOE RP5**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/22/2017 09:05**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	0.061	pCi/g	+/-0.849	0.849	1.57	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	6.70	7.75	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.

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Certificate of Analysis

Sample Summary

SDG Number:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501004**	**Date Collected:**	**06/14/2017 09:55**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.7**
Client ID:	**B38JN1**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674373**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**06/29/2017 07:47**	**Analyst:**	**MXR1**	**Instrument:**	**GAM31**
Data File:	**G425501004.CNF;1**	**Aliquot:**	**50.93 g**	**Count Time:**	**120 min**
Prep Batch:	**1674373**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/16/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.061	pCi/g	+/-0.0498	0.0572	0.108	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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501004**	**Date Collected:**	**06/14/2017 09:55**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.7**

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501005**	**Date Collected:**	**06/14/2017 10:05**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.5**
Client ID:	**B38JN2**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674448**	**Method:**	**AMCMISO_EIE_PREC_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/21/2017 09:08**	**Analyst:**	**BXA4**	**Instrument:**	**1104**
Data File:	**S0425501005_AM.1A.gcnf**	**Aliquot:**	**0.103 g**	**Count Time:**	**240 min**
Prep Batch:	**1674448**	**Prep Method:**	**DOE EML HASL-300, Am-05**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.104	pCi/g	+/-0.204	0.205	0.283	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	19.6	20.4	pCi/g	96.1	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501005**	**Date Collected:**	**06/14/2017 10:05**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.5**
Client ID:	**B38JN2**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674454**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/20/2017 16:29**	**Analyst:**	**BXA4**	**Instrument:**	**1224**
Data File:	**S0425501005_PU.1A.gcnf**	**Aliquot:**	**0.103 g**	**Count Time:**	**240 min**
Prep Batch:	**1674454**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.098	pCi/g	+/-0.335	0.335	0.621	1.00
OER-100-70	Plutonium-239/240	U	0.192	pCi/g	+/-0.382	0.383	0.621	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	14.3	19.1	pCi/g	75	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501005**	**Date Collected:**	**06/14/2017 10:05**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.5**
Client ID:	**B38JN2**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674457**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/21/2017 08:43**	**Analyst:**	**BXA4**	**Instrument:**	**1024**
Data File:	**S0425501005_UU.1A.gcnf**	**Aliquot:**	**0.103 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1674457**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234	U	0.466	pCi/g	+/-0.465	0.471	0.539	1.00
15117-96-1/13982-7	Uranium-235/236	U	-0.0262	pCi/g	+/-0.226	0.227	0.523	1.00
7440-61-1	Uranium-238	U	0.487	pCi/g	+/-0.464	0.469	0.489	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	13.5	20.3	pCi/g	66.8	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501005**	**Date Collected:**	**06/14/2017 10:05**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.5**
Client ID:	**B38JN2**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1675233**	**Method:**	**SRTOT_SEP_PRECIP_GPC**	**SOP Ref:**	**GL-RAD-A-004**
Run Date:	**06/26/2017 15:49**	**Analyst:**	**JXB7**	**Instrument:**	**PIC7D**
Data File:	**S1675233r.xls**	**Aliquot:**	**0.302 g**	**Count Time:**	**60 min**
Prep Batch:	**1675233**	**Prep Method:**	**EPA 905.0 Modified/DOE RP5**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/22/2017 09:05**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	-0.464	pCi/g	+/-0.614	0.614	1.33	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.70	7.75	mg	99.4	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501005**	**Date Collected:**	**06/14/2017 10:05**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.5**
Client ID:	**B38JN2**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674373**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**06/29/2017 07:50**	**Analyst:**	**MXR1**	**Instrument:**	**GAM06**
Data File:	**G425501005.CNF;1**	**Aliquot:**	**51.23 g**	**Count Time:**	**120 min**
Prep Batch:	**1674373**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/16/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	-0.0299	pCi/g	+/-0.0322	0.035	0.0514	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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501005**	**Date Collected:**	**06/14/2017 10:05**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.5**

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Certificate of Analysis

Sample Summary

SDG Number:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501006**	**Date Collected:**	**06/14/2017 10:10**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.8**
Client ID:	**B38JN3**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674448**	**Method:**	**AMCMISO_EIE_PREC_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/21/2017 09:08**	**Analyst:**	**BXA4**	**Instrument:**	**1105**
Data File:	**S0425501006_AM.1A.gcnf**	**Aliquot:**	**0.104 g**	**Count Time:**	**240 min**
Prep Batch:	**1674448**	**Prep Method:**	**DOE EML HASL-300, Am-05**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.119	pCi/g	+/-0.210	0.211	0.319	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	20.9	20.2	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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501006**	**Date Collected:**	**06/14/2017 10:10**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.8**
Client ID:	**B38JN3**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674454**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/20/2017 16:30**	**Analyst:**	**BXA4**	**Instrument:**	**1227**
Data File:	**S0425501006_PU.1A.gcnf**	**Aliquot:**	**0.104 g**	**Count Time:**	**240 min**
Prep Batch:	**1674454**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.00345	pCi/g	+/-0.256	0.256	0.568	1.00
OER-100-70	Plutonium-239/240	U	-0.0621	pCi/g	+/-0.187	0.188	0.527	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	15.0	18.9	pCi/g	79.2	(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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501006**	**Date Collected:**	**06/14/2017 10:10**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.8**
Client ID:	**B38JN3**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674457**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/21/2017 08:44**	**Analyst:**	**BXA4**	**Instrument:**	**1128**
Data File:	**S0425501006_UU.1A.gcnf**	**Aliquot:**	**0.104 g**	**Count Time:**	**240 min**
Prep Batch:	**1674457**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234	U	0.548	pCi/g	+/-0.474	0.481	0.580	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.0703	pCi/g	+/-0.264	0.264	0.443	1.00
7440-61-1	Uranium-238	U	0.395	pCi/g	+/-0.394	0.398	0.457	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	18.7	20.1	pCi/g	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.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501006**	**Date Collected:**	**06/14/2017 10:10**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.8**
Client ID:	**B38JN3**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1675233**	**Method:**	**SRTOT_SEP_PRECIP_GPC**	**SOP Ref:**	**GL-RAD-A-004**
Run Date:	**06/26/2017 15:49**	**Analyst:**	**JXB7**	**Instrument:**	**PIC8A**
Data File:	**S1675233r.xls**	**Aliquot:**	**0.301 g**	**Count Time:**	**70 min**
Prep Batch:	**1675233**	**Prep Method:**	**EPA 905.0 Modified/DOE RP5**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/22/2017 09:05**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	-0.00113	pCi/g	+/-0.761	0.761	1.42	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	8.00	7.75	mg	103	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501006**	**Date Collected:**	**06/14/2017 10:10**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.8**
Client ID:	**B38JN3**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674373**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**06/29/2017 07:50**	**Analyst:**	**MXR1**	**Instrument:**	**GAM23**
Data File:	**G425501006.CNF;1**	**Aliquot:**	**46.66 g**	**Count Time:**	**120 min**
Prep Batch:	**1674373**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/16/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.000495	pCi/g	+/-0.0387	0.0387	0.071	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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501006**	**Date Collected:**	**06/14/2017 10:10**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**1.8**

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501007**	**Date Collected:**	**06/14/2017 10:20**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**2.6**
Client ID:	**B38JN4**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674448**	**Method:**	**AMCMISO_EIE_PREC_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/21/2017 09:08**	**Analyst:**	**BXA4**	**Instrument:**	**1106**
Data File:	**S0425501007_AM.1A.gcnf**	**Aliquot:**	**0.105 g**	**Count Time:**	**240 min**
Prep Batch:	**1674448**	**Prep Method:**	**DOE EML HASL-300, Am-05**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.0632	pCi/g	+/-0.216	0.216	0.400	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	18.5	20.0	pCi/g	92.7	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501007**	**Date Collected:**	**06/14/2017 10:20**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**2.6**
Client ID:	**B38JN4**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674454**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/21/2017 16:21**	**Analyst:**	**BXA4**	**Instrument:**	**1104**
Data File:	**S0425501007_PU.2A.gcnf**	**Aliquot:**	**0.105 g**	**Count Time:**	**240 min**
Prep Batch:	**1674454**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	0.286	pCi/g	+/-0.315	0.317	0.214	1.00
OER-100-70	Plutonium-239/240	U	0.117	pCi/g	+/-0.366	0.367	0.693	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	14.4	18.7	pCi/g	76.9	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501007**	**Date Collected:**	**06/14/2017 10:20**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**2.6**
Client ID:	**B38JN4**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674457**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/21/2017 08:44**	**Analyst:**	**BXA4**	**Instrument:**	**1131**
Data File:	**S0425501007_UU.1A.gcnf**	**Aliquot:**	**0.105 g**	**Count Time:**	**240 min**
Prep Batch:	**1674457**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234	U	0.245	pCi/g	+/-0.363	0.365	0.530	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.00	pCi/g	+/-0.201	0.201	0.299	1.00
7440-61-1	Uranium-238		1.37	pCi/g	+/-0.670	0.699	0.241	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	17.2	19.9	pCi/g	86.8	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501007**	**Date Collected:**	**06/14/2017 10:20**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**2.6**
Client ID:	**B38JN4**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1675233**	**Method:**	**SRTOT_SEP_PRECIP_GPC**	**SOP Ref:**	**GL-RAD-A-004**
Run Date:	**06/26/2017 15:49**	**Analyst:**	**JXB7**	**Instrument:**	**PIC8B**
Data File:	**S1675233r.xls**	**Aliquot:**	**0.335 g**	**Count Time:**	**60 min**
Prep Batch:	**1675233**	**Prep Method:**	**EPA 905.0 Modified/DOE RP5**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/22/2017 09:05**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	-0.163	pCi/g	+/-0.453	0.453	0.974	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.30	7.75	mg	94.2	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501007**	**Date Collected:**	**06/14/2017 10:20**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**2.6**
Client ID:	**B38JN4**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674373**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**06/29/2017 07:51**	**Analyst:**	**MXR1**	**Instrument:**	**GAM24**
Data File:	**G425501007.CNF;1**	**Aliquot:**	**48.46 g**	**Count Time:**	**120 min**
Prep Batch:	**1674373**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/16/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	0.0142	pCi/g	+/-0.0242	0.0251	0.0492	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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501007**	**Date Collected:**	**06/14/2017 10:20**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**2.6**

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Certificate of Analysis

Sample Summary

SDG Number:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501008**	**Date Collected:**	**06/14/2017 10:25**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**2.7**
Client ID:	**B38JN5**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674448**	**Method:**	**AMCMISO_EIE_PREC_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/21/2017 09:08**	**Analyst:**	**BXA4**	**Instrument:**	**1107**
Data File:	**S0425501008_AM.1A.gcnf**	**Aliquot:**	**0.106 g**	**Count Time:**	**239.9998 min**
Prep Batch:	**1674448**	**Prep Method:**	**DOE EML HASL-300, Am-05**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14596-10-2	Americium-241	U	0.00265	pCi/g	+/-0.196	0.196	0.436	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Americium-243 Tracer	17.4	19.8	pCi/g	88	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501008**	**Date Collected:**	**06/14/2017 10:25**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**2.7**
Client ID:	**B38JN5**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674454**	**Method:**	**PUISO_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/21/2017 16:21**	**Analyst:**	**BXA4**	**Instrument:**	**1105**
Data File:	**S0425501008_PU.2A.gcnf**	**Aliquot:**	**0.106 g**	**Count Time:**	**240 min**
Prep Batch:	**1674454**	**Prep Method:**	**DOE EML HASL-300, Pu-11-**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
13981-16-3	Plutonium-238	U	-0.0449	pCi/g	+/-0.136	0.136	0.381	1.00
OER-100-70	Plutonium-239/240	U	0.0973	pCi/g	+/-0.256	0.257	0.461	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	15.6	18.6	pCi/g	84	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501008**	**Date Collected:**	**06/14/2017 10:25**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**2.7**
Client ID:	**B38JN5**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674457**	**Method:**	**UISO_IE_PRECIP_AEA**	**SOP Ref:**	**GL-RAD-A-011**
Run Date:	**06/21/2017 08:44**	**Analyst:**	**BXA4**	**Instrument:**	**1132**
Data File:	**S0425501008_UU.1A.gcnf**	**Aliquot:**	**0.106 g**	**Count Time:**	**240 min**
Prep Batch:	**1674457**	**Prep Method:**	**DOE EML HASL-300, U-02-R**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/19/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
U-233/234 *13968-55-3/13966-29-5*	Uranium-233/234	U	0.317	pCi/g	+/-0.386	0.388	0.517	1.00
15117-96-1/13982-7	Uranium-235/236	U	0.0272	pCi/g	+/-0.284	0.284	0.592	1.00
7440-61-1	Uranium-238		0.668	pCi/g	+/-0.490	0.500	0.434	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Uranium-232 Tracer	17.1	19.7	pCi/g	86.8	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501008**	**Date Collected:**	**06/14/2017 10:25**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**2.7**
Client ID:	**B38JN5**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1675233**	**Method:**	**SRTOT_SEP_PRECIP_GPC**	**SOP Ref:**	**GL-RAD-A-004**
Run Date:	**06/27/2017 13:12**	**Analyst:**	**JXB7**	**Instrument:**	**PIC2A**
Data File:	**S1675233r.xls**	**Aliquot:**	**0.311 g**	**Count Time:**	**60 min**
Prep Batch:	**1675233**	**Prep Method:**	**EPA 905.0 Modified/DOE RP5**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/22/2017 09:05**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	-0.358	pCi/g	+/-0.404	0.404	0.930	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	7.60	7.75	mg	98.1	(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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501008**	**Date Collected:**	**06/14/2017 10:25**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**2.7**
Client ID:	**B38JN5**			**Prep Basis:**	**"Dry Weight Corrected"**
Batch ID:	**1674373**	**Method:**	**GAMMA_GS**	**SOP Ref:**	**GL-RAD-A-013**
Run Date:	**06/29/2017 09:10**	**Analyst:**	**MXR1**	**Instrument:**	**GAM14**
Data File:	**G425501008.CNF;1**	**Aliquot:**	**48.01 g**	**Count Time:**	**120 min**
Prep Batch:	**1674373**	**Prep Method:**	**DOE HASL 300, 4.5.2.3/Ga-01**	**Prep SOP Ref:**	**GL-RAD-A-021**
Prep Date:	**06/16/2017 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137	U	-0.0176	pCi/g	+/-0.0304	0.0314	0.0448	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:	**GEL425501**	**Client:**	**CPRC001**	**Project:**	**CPRC0FRC1609**
Lab Sample ID:	**425501008**	**Date Collected:**	**06/14/2017 10:25**	**Matrix:**	**SOIL**
		Date Received:	**06/15/2017 09:05**	**%Moisture:**	**2.7**

Quality Control Summary

GEL LABORATORIES LLC

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

QC Summary

Report Date: June 29, 2017
Page 1 of 4

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **425501**

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria		Range	Analyst	Date Time
Rad Alpha Spec										
Batch 1674448										
QC1203812393 MB										
Americium-241			U	0.226	pCi/g				BXA4	06/21/1709:08
Uncert:				+/-0.266						
TPU:				+/-0.268						
**Americium-243 Tracer	19.8			17.5	pCi/g	REC:	88	(30%-105%)		
Uncert:				+/-2.13						
TPU:				+/-3.29						
QC1203812394 425386001 DUP										
Americium-241	U	0.00235	U	0.040	pCi/g					06/21/1709:08
Uncert:		+/-0.174		+/-0.150		RPD:	0	N/A		
TPU:		+/-0.174		+/-0.150		RER:	0.321	(0-2)		
**Americium-243 Tracer	20.2	21.5		20.3	pCi/g	REC:	101	(30%-105%)		
Uncert:		+/-2.15		+/-2.01						
TPU:		+/-3.36		+/-3.15						
QC1203812395 LCS										
Americium-241	18.6			18.3	pCi/g	REC:	99	(80%-120%)		
Uncert:				+/-1.88						
TPU:				+/-2.87						
**Americium-243 Tracer	19.8			19.9	pCi/g	REC:	101	(30%-105%)		
Uncert:				+/-1.93						
TPU:				+/-3.04						
Batch 1674454										
QC1203812407 MB										
Plutonium-238			U	0.0717	pCi/g				BXA4	06/20/1716:28
Uncert:				+/-0.269						
TPU:				+/-0.269						
Plutonium-239/240			U	0.0491	pCi/g					
Uncert:				+/-0.273						
TPU:				+/-0.273						
**Plutonium-242 Tracer	18.6			10.5	pCi/g	REC:	57	(30%-105%)		
Uncert:				+/-2.61						
TPU:				+/-3.84						
QC1203812408 425386001 DUP										
Plutonium-238	U	0.0695	U	-0.0538	pCi/g					06/20/1716:30
Uncert:		+/-0.195		+/-0.238		RPD:	0	N/A		
TPU:		+/-0.195		+/-0.239		RER:	0.783	(0-2)		
Plutonium-239/240	U	0.114	U	-0.161	pCi/g					
Uncert:		+/-0.357		+/-0.260		RPD:	0	N/A		
TPU:		+/-0.357		+/-0.261		RER:	1.22	(0-2)		
**Plutonium-242 Tracer	18.9	16.0		12.1	pCi/g	REC:	64	(30%-105%)		
Uncert:		+/-2.30		+/-2.88						
TPU:		+/-3.45		+/-4.22						
QC1203812409 LCS										
Plutonium-238			U	0.270	pCi/g					06/20/1716:30
Uncert:				+/-0.355						

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QC Summary

Workorder: 425501

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria		Range	Analyst	Date Time
Rad Alpha Spec										
Batch 1674454										
	TPU:			+/-0.357						
Plutonium-239/240	18.6			20.4	pCi/g	REC:	109	(80%-120%)		
	Uncert:			+/-2.66						
	TPU:			+/-4.03						
**Plutonium-242 Tracer	18.6			16.2	pCi/g	REC:	88	(30%-105%)		
	Uncert:			+/-2.54						
	TPU:			+/-3.75						
Batch 1674457										
QC1203812415 MB										
Uranium-233/234			U	0.0332	pCi/g				BXA4	06/21/1708:43
	Uncert:			+/-0.214						
	TPU:			+/-0.214						
Uranium-235/236			U	-0.0528	pCi/g					
	Uncert:			+/-0.159						
	TPU:			+/-0.160						
Uranium-238			U	0.209	pCi/g					
	Uncert:			+/-0.264						
	TPU:			+/-0.266						
**Uranium-232 Tracer	19.7			18.2	pCi/g	REC:	93	(30%-105%)		
	Uncert:			+/-2.14						
	TPU:			+/-3.36						
QC1203812416 425386001 DUP										
Uranium-233/234	U	0.411	U	0.394	pCi/g					06/21/1708:44
	Uncert:	+/-0.383		+/-0.461		RPD:	0	N/A		
	TPU:	+/-0.387		+/-0.465		RER:	0.0554	(0-2)		
Uranium-235/236	U	0.0476	U	-0.0256	pCi/g					
	Uncert:	+/-0.353		+/-0.221		RPD:	0	N/A		
	TPU:	+/-0.353		+/-0.222		RER:	0.344	(0-2)		
Uranium-238	U	0.308	U	0.411	pCi/g					
	Uncert:	+/-0.488		+/-0.419		RPD:	0	N/A		
	TPU:	+/-0.490		+/-0.423		RER:	0.313	(0-2)		
**Uranium-232 Tracer	20.1	18.5		16.6	pCi/g	REC:	83	(30%-105%)		
	Uncert:	+/-2.22		+/-2.60						
	TPU:	+/-3.49		+/-3.97						
QC1203812417 LCS										
Uranium-233/234				22.4	pCi/g					06/21/1708:44
	Uncert:			+/-2.51						
	TPU:			+/-4.03						
Uranium-235/236				1.32	pCi/g					
	Uncert:			+/-0.704						
	TPU:			+/-0.728						
Uranium-238	25.5			25.5	pCi/g	REC:	100	(80%-120%)		
	Uncert:			+/-2.67						
	TPU:			+/-4.48						
**Uranium-232 Tracer	19.7			18.8	pCi/g	REC:	96	(30%-105%)		
	Uncert:			+/-2.35						
	TPU:			+/-3.63						
Rad Gamma Spec										
Batch 1674373										

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QC Summary

Workorder: **425501**

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria		Range	Analyst	Date Time
Rad Gamma Spec										
Batch 1674373										
QC1203812233 MB										
Cesium-137			U	0.00961	pCi/g				MXR1	06/29/1709:10
Uncert:				+/-0.0179						
TPU:				+/-0.0185						
QC1203812234 425501001 DUP										
Cesium-137	U	-0.00596	U	-0.00247	pCi/g					06/29/1709:11
Uncert:		+/-0.0363		+/-0.0314		RPD:	0	N/A		
TPU:		+/-0.0364		+/-0.0314		RER:	0.142	(0-2)		
QC1203812235 LCS										
Americium-241	570			590	pCi/g	REC:	103	(80%-120%)		06/29/1709:20
Uncert:				+/-13.7						
TPU:				+/-54.2						
Cobalt-60	106			111	pCi/g	REC:	105	(80%-120%)		
Uncert:				+/-3.74						
TPU:				+/-12.2						
Cesium-137	183			191	pCi/g	REC:	105	(80%-120%)		
Uncert:				+/-3.75						
TPU:				+/-19.2						
Rad Gas Flow										
Batch 1675233										
QC1203814267 MB										
Total Strontium			U	0.646	pCi/g				JXB7	06/26/1715:48
Uncert:				+/-0.897						
TPU:				+/-0.913						
**Strontium Carrier	7.75			6.70	mg	REC:	87	(40%-110%)		
QC1203814268 425386001 DUP										
Total Strontium	U	0.522	U	-0.0995	pCi/g					06/27/1713:12
Uncert:		+/-0.655		+/-0.563		RPD:	0	N/A		
TPU:		+/-0.669		+/-0.564		RER:	1.39	(0-2)		
**Strontium Carrier	7.75	7.60		7.10	mg	REC:	92	(40%-110%)		
QC1203814269 LCS										
Total Strontium	65.3			65.1	pCi/g	REC:	100	(80%-120%)		06/26/1715:49
Uncert:				+/-3.85						
TPU:				+/-16.9						
**Strontium Carrier	7.75			6.90	mg	REC:	89	(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:

*	Duplicate analysis not within control limits
+	Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
A	The TIC is a suspected aldol-condensation product
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 both the associated QC blank and in the sample.
B	The associated QC sample blank has a result >= 2X the MDA and, after corrections, result is >= MDA for this sample
C	Analyte has been confirmed by GC/MS analysis
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.

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QC Summary

Workorder: **425501**

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

D	Results are reported from a diluted aliquot of sample.
E	Concentration exceeds the calibration range of the instrument
E	Reported value is estimated due to interferences. See comment in narrative.
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
M	Duplicate precision not met.
N	Spike Sample recovery is outside control limits.
P	Aroclor target analyte with greater than 25% difference between column analyses.
S	Reported value determined by the Method of Standard Additions (MSA)
T	Spike and/or spike duplicate 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
W	Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Z	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
o	Analyte failed to recover within LCS limits (0rganics only)

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.