



July 07, 2017

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

Re: CHPRC SAF F11-003  
Work Order: 425454  
SDG: GEL425454

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 14, 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: 302879 - 7H  
Chain of Custody: F11-003-173, F11-003-178 and F11-003-183  
Enclosures



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# Case Narrative

July 10, 2017

General Narrative  
for  
CH2MHill Plateau Remediation Company  
CHPRC SAF F11-003  
SDG: GEL425454

July 07, 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 14, 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:

<b><u>Laboratory Identification</u></b>	<b><u>Sample Description</u></b>
425454001	B3B350
425454002	B3B355
425454003	B3B360

**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.

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Data Package

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

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.

  
Brielle Luthman for  
Heather Shaffer  
Project Manager

July 10, 2017

Radiochemistry

Technical Case Narrative

CH2MHill Plateau Remediation Company (CPRC)

SDG #: GEL425454

Work Order #: 425454

#### **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**

Additional cleanup steps were performed on samples 1203814972 (Non SDG 425529001DUP), 425454001 (B3B350) and 425454002 (B3B355) in order to confirm sample results. The recounts are reported. Additional cleanup steps were performed on samples 425454003 (B3B360) in order to remove suspected false positives. The recounts are reported.

#### **C14\_LSC: 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.

#### **TRITIUM\_DIST\_LSC: COMMON**

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

#### **Technical Information**

##### **Recounts**

Sample 1203815893 (Non SDG 425280008MS) was recounted due to low recovery. The recount is reported.

#### **Miscellaneous Information**

##### **Additional Comments**

The matrix spike, 1203815893 (Non SDG 425280008MS), aliquot was reduced to conserve sample volume.

#### **TC99\_EIE\_LSC: COMMON**

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

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applicable, with the following exceptions.

**Technical Information**

**Recounts**

Sample 1203815897 (LCS) was recounted due to low recovery. The recount is reported.

**Certification Statement**

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

# **Chain of Custody and Supporting Documentation**

July 10, 2017

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F11-003-173	PAGE 1 OF 1
COLLECTOR CHRIS FULTON CHERC	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR SUMNER, LC		PRICE CODE 7H	DATA TURNAROUND 30 Days / 30 Days	
SAMPLING LOCATION Influent Valve, V-XE068	PROJECT DESIGNATION 100-KX Pump and Treat Influent & Effluent Tanks - Water	SAF NO. F11-003		AIR QUALITY	METHOD OF SHIPMENT FEDERAL EXPRESS		
ICE CHEST NO. 605-311	FIELD LOGBOOK NO. HNF-N-491-16	ACTUAL SAMPLE DEPTH N/A		COA 302879	ORIGINAL		
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 8031	BILL OF LADING/AIR BILL NO. 779393729728					
MATRIX* A=Air DL=Drum 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.	None	HNO3 to pH <2	HNO3 to pH <2	None		
	PRESERVATION	6 Months	6 Months	6 Months	6 Months		
	HOLDING TIME	G/P	G/P	G/P	P		
	TYPE OF CONTAINER	1	1	1	1		
	NO. OF CONTAINER(S)	500ml	500ml	500ml	500ml		
	VOLUME	C14_LSC: COMMON;	TC99_EIE_LSC: COMMON;	TRITIUM_DIST_LSC: COMMON;			
	SAMPLE ANALYSIS						
SPECIAL HANDLING AND/OR STORAGE NA							
SAMPLE NO. B3B350	MATRIX* WATER	SAMPLE DATE JUN 13 2017	SAMPLE TIME 1006				

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CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS TRVL-17-135	
RELINQUISHED BY/REMOVED FROM CHRIS FULTON	DATE/TIME JUN 13 2017 1031	RECEIVED BY/STORED IN Leahy Walsh /CHERC	DATE/TIME JUN 13 2017 1031		
RELINQUISHED BY/REMOVED FROM Leahy Walsh /CHERC	DATE/TIME JUN 13 2017 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME FED EX		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN STAY BOOK 64179.20	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	

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426454

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F11-003-178	PAGE 1 OF 1
COLLECTOR CHRIS FULTON CHPRC	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR SUMNER, LC	PRICE CODE 7H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION Effluent Valve, V-XJ030A	PROJECT DESIGNATION 100-KX Pump and Treat Influent & Effluent Tanks - Water	FIELD LOGBOOK NO. HNF-N-491-16	ACTUAL SAMPLE DEPTH N/A	AIR QUALITY	METHOD OF SHIPMENT FEDERAL EXPRESS
ICE CHEST NO. 605-311	OFFSITE PROPERTY NO. 8031	BILL OF LADING/AIR BILL NO. 779393729728			
SHIPPED TO GEL Laboratories, LLC	COA 302879				

MATRIX*	PRESERVATION	HNO3 to pH	HNO3 to pH	HNO3 to pH
A=Air DL=Drum L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	None	<2	<2	<2
POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/JATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	6 Months	6 Months	6 Months	6 Months
	G/P	G/P	G/P	P
	1	1	1	1
	500mL	1L	500mL	500mL
SPECIAL HANDLING AND/OR STORAGE NA	C14, LSC; COMMON;	SRTOT, SEP, PR ECP, GPC; COMMON;	TC99, EIE, LSC; COMMON;	TRITIUM, DIST LSC; COMMON;
SAMPLE NO.	SAMPLE DATE	SAMPLE TIME		
B3B355	JUN 13 2017	0945		

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM CHRIS FULTON CHPRC	RECEIVED BY/STORED IN Lesly Wall CHPRC	TRVL-17-135
DATE/TIME JUN 13 2017 09:31	DATE/TIME JUN 13 2017 10:31	
RELINQUISHED BY/REMOVED FROM CHRIS FULTON CHPRC	RECEIVED BY/STORED IN FEDEX	
DATE/TIME JUN 13 2017 1400	DATE/TIME 6-14-17 9:20	
RELINQUISHED BY/REMOVED FROM CHRIS FULTON CHPRC	RECEIVED BY/STORED IN My Ben STACY BOANC	
DATE/TIME FEB 07	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	
LABORATORY SECTION	RECEIVED BY	TITLE
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY
PRINTED ON 5/8/2017	FSR ID = FSR45070	TRVL NUM = TRVL-17-135
		A-6003-618 (REV 2)

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CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F11-003-183	PAGE 1 OF 1
COLLECTOR CHRIS FULTON CHPRC	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR SUMNER, LC	PRICE CODE 7H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION Effluent Valve, V-X1030A - FTB	PROJECT DESIGNATION 100-KX Pump and Treat Influent & Effluent Tanks - Water	FIELD LOGBOOK NO. HNF-491-16	SAF NO. F11-003	AIR QUALITY	
ICE CHEST NO. 605-311	ACTUAL SAMPLE DEPTH N/A	COA 302879	METHOD OF SHIPMENT FEDERAL EXPRESS		ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 8037	BILL OF LADING/AIR BILL NO. 779393729728			

MATRIX*	PRESERVATION	HNO3 to pH	HNO3 to pH	HNO3 to pH	None
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	None	<2	<2	<2	None
POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	6 Months	6 Months	6 Months	6 Months	6 Months
	G/P	G/P	G/P	P	P
	1	1	1	1	1
	500mL	1L	500mL	500mL	500mL
SPECIAL HANDLING AND/OR STORAGE NA	C14_LSC: COMMON;	SRTOT_SEP_PR ECP_GRC: COMMON;	TC99_EIE_LSC: COMMON;	TRITIUM_DIST_LSC: COMMON;	
SAMPLE NO.	SAMPLE DATE	SAMPLE TIME			
B3B360	JUN 13 2017	0745	✓	✓	✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM CHRIS FULTON	Leahy Wall FC/PRC	RECEIVED BY/STORED IN Leahy Wall FC/PRC	DATE/TIME JUN 13 2017 10:31	TRVL-17-135
RELINQUISHED BY/REMOVED FROM CHRIS FULTON	Leahy Wall FC/PRC	RECEIVED BY/STORED IN FEDEX	DATE/TIME JUN 13 2017 1400	
RELINQUISHED BY/REMOVED FROM CHRIS FULTON	Leahy Wall FC/PRC	RECEIVED BY/STORED IN STACY BOONE	DATE/TIME 6-14-17 9:20	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	DATE/TIME	
LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME	



# **Data Review Qualifier Definitions**

## 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 (Organics 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 $\geq 2X$ the MDA and, after corrections, result is $\geq$ 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 $\geq$ 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 $\geq$ 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 07 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

# Radiological Analysis

# Case Narrative

July 10, 2017

Radiochemistry

Technical Case Narrative

CH2MHill Plateau Remediation Company (CPRC)

SDG #: GEL425454

Work Order #: 425454

**Product:** SRTOT\_SEP\_PRECIP\_GPC: COMMON

**Analytical Method:** SRTOT\_SEP\_PRECIP\_GPC

**Analytical Procedure:** GL-RAD-A-004 REV# 18

**Analytical Batch:** 1675562

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

<b><u>GEL Sample ID#</u></b>	<b><u>Client Sample Identification</u></b>
425454001	B3B350
425454002	B3B355
425454003	B3B360
1203814971	Method Blank (MB)
1203814972	425529001(NonSDG) Sample Duplicate (DUP)
1203814973	Laboratory Control Sample (LCS)

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

**Data Summary:**

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

**Technical Information**

**Recounts**

Additional cleanup steps were performed on samples 1203814972 (Non SDG 425529001DUP), 425454001 (B3B350) and 425454002 (B3B355) in order to confirm sample results. The recounts are reported. Additional cleanup steps were performed on samples 425454003 (B3B360) in order to remove suspected false positives. The recounts are reported.

**Product:** C14\_LSC: COMMON

**Analytical Method:** C14\_LSC

**Analytical Procedure:** GL-RAD-A-003 REV# 15

**Analytical Batch:** 1674668

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

<b><u>GEL Sample ID#</u></b>	<b><u>Client Sample Identification</u></b>
425454001	B3B350
425454002	B3B355
425454003	B3B360

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1203812815	Method Blank (MB)
1203812816	425282001(NonSDG) Sample Duplicate (DUP)
1203812817	425282001(NonSDG) Matrix Spike (MS)
1203812818	Laboratory Control Sample (LCS)

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

**Data Summary:**

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

**Product:** TRITIUM\_DIST\_LSC: COMMON

**Analytical Method:** TRITIUM\_DIST\_LSC

**Analytical Procedure:** GL-RAD-A-002 REV# 22

**Analytical Batch:** 1675960

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

<b><u>GEL Sample ID#</u></b>	<b><u>Client Sample Identification</u></b>
425454001	B3B350
425454002	B3B355
425454003	B3B360
1203815891	Method Blank (MB)
1203815892	425280008(NonSDG) Sample Duplicate (DUP)
1203815893	425280008(NonSDG) Matrix Spike (MS)
1203815894	Laboratory Control Sample (LCS)

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

**Data Summary:**

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

**Technical Information**

**Recounts**

Sample 1203815893 (Non SDG 425280008MS) was recounted due to low recovery. The recount is reported.

**Miscellaneous Information**

**Additional Comments**

The matrix spike, 1203815893 (Non SDG 425280008MS), aliquot was reduced to conserve sample volume.

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**Product:** TC99\_EIE\_LSC: COMMON

**Analytical Method:** TC99\_EIE\_LSC

**Analytical Procedure:** GL-RAD-A-059 REV# 5

**Analytical Batch:** 1675961

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

<b><u>GEL Sample ID#</u></b>	<b><u>Client Sample Identification</u></b>
425454001	B3B350
425454002	B3B355
425454003	B3B360
1203815895	Method Blank (MB)
1203815896	425384006(NonSDG) Sample Duplicate (DUP)
1203815897	Laboratory Control Sample (LCS)

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

**Data Summary:**

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

**Technical Information**

**Recounts**

Sample 1203815897 (LCS) was recounted due to low recovery. The recount is reported.

**Certification Statement**

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

July 10, 2017

**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: GEL425454 GEL Work Order: 425454

**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:** Heather McCarty

**Date:** 07 JUL 2017

**Title:** Analyst II

# Sample Data Summary

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**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL425454	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F11003
<b>Lab Sample ID:</b> 425454001	<b>Date Collected:</b> 06/13/2017 10:00	<b>Matrix:</b> WATER
	<b>Date Received:</b> 06/14/2017 09:20	
<b>Client ID:</b> B3B350	<b>Method:</b> SRTOT_SEP_PRECIP_GPC	<b>Prep Basis:</b> "As Received"
<b>Batch ID:</b> 1675562	<b>Analyst:</b> BXF1	<b>SOP Ref:</b> GL-RAD-A-004
<b>Run Date:</b> 06/27/2017 16:09	<b>Aliquot:</b> 300 mL	<b>Instrument:</b> PIC4C
<b>Data File:</b> S1675562r.xls	<b>Prep Method:</b> EPA 905.0 Modified/DOE RP5	<b>Count Time:</b> 70 min
<b>Prep Batch:</b> 1675562		
<b>Prep Date:</b> 06/21/2017 13:05		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium		2.97	pCi/L	+/-1.10	1.29	1.44	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	5.30	7.75	mg	68.4	(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**

<b>SDG Number:</b> GEL425454	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F11003
<b>Lab Sample ID:</b> 425454001	<b>Date Collected:</b> 06/13/2017 10:00	<b>Matrix:</b> WATER
	<b>Date Received:</b> 06/14/2017 09:20	
<b>Client ID:</b> B3B350	<b>Method:</b> C14_LSC	<b>Prep Basis:</b> "As Received"
<b>Batch ID:</b> 1674668	<b>Analyst:</b> BXM4	<b>SOP Ref:</b> GL-RAD-A-003
<b>Run Date:</b> 06/23/2017 03:07	<b>Aliquot:</b> 60.06 mL	<b>Instrument:</b> LSCRED
<b>Data File:</b> C1674668.xls	<b>Prep Method:</b> EPA EERF C-01 Modified	<b>Count Time:</b> 35 min
<b>Prep Batch:</b> 1674668		
<b>Prep Date:</b> 06/22/2017 09:53		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14		33.4	pCi/L	+/-18.5	19.5	30.0	50.0

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

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

July 10, 2017

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL425454	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F11003
<b>Lab Sample ID:</b> 425454001	<b>Date Collected:</b> 06/13/2017 10:00	<b>Matrix:</b> WATER
	<b>Date Received:</b> 06/14/2017 09:20	
<b>Client ID:</b> B3B350	<b>Method:</b> TRITIUM_DIST_LSC	<b>Prep Basis:</b> "As Received"
<b>Batch ID:</b> 1675960	<b>Analyst:</b> BXM4	<b>SOP Ref:</b> GL-RAD-A-002
<b>Run Date:</b> 07/06/2017 01:48	<b>Aliquot:</b> 50 mL	<b>Instrument:</b> LSCGREEN
<b>Data File:</b> T1675960R.xls	<b>Prep Method:</b> EPA 906.0 Modified	<b>Count Time:</b> 45 min
<b>Prep Batch:</b> 1675960		
<b>Prep Date:</b> 07/05/2017 09:31		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		3360	pCi/L	+/-338	732	360	400

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

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

July 10, 2017

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

SDG Number: GEL425454	Client: CPRC001	Project: CPRC0F11003
Lab Sample ID: 425454001	Date Collected: 06/13/2017 10:00	Matrix: WATER
	Date Received: 06/14/2017 09:20	
Client ID: B3B350	Method: TC99_EIE_LSC	Prep Basis: "As Received"
Batch ID: 1675961	Analyst: CXS7	SOP Ref: GL-RAD-A-059
Run Date: 07/04/2017 13:04	Aliquot: 100 mL	Instrument: LSCGREEN
Data File: E1675961R.xls	Prep Method: DOE EML HASL-300, Tc-02-	Count Time: 20 min
Prep Batch: 1675961		
Prep Date: 06/29/2017 13:52		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-4.27	pCi/L	+/-21.8	21.8	38.1	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	31500	33500	CPM	94	(30%-105%)

**Comments:**

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

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

The MDC is a sample specific MDC.

July 10, 2017

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL425454	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F11003
<b>Lab Sample ID:</b> 425454002	<b>Date Collected:</b> 06/13/2017 09:45	<b>Matrix:</b> WATER
	<b>Date Received:</b> 06/14/2017 09:20	
<b>Client ID:</b> B3B355	<b>Method:</b> SRTOT_SEP_PRECIP_GPC	<b>Prep Basis:</b> "As Received"
<b>Batch ID:</b> 1675562	<b>Analyst:</b> BXF1	<b>SOP Ref:</b> GL-RAD-A-004
<b>Run Date:</b> 06/27/2017 16:09	<b>Aliquot:</b> 300 mL	<b>Instrument:</b> PIC5A
<b>Data File:</b> S1675562r.xls	<b>Prep Method:</b> EPA 905.0 Modified/DOE RP5	<b>Count Time:</b> 70 min
<b>Prep Batch:</b> 1675562		
<b>Prep Date:</b> 06/21/2017 13:05		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium		6.67	pCi/L	+/-1.70	2.29	1.93	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	4.00	7.75	mg	51.6	(40%-110%)

**Comments:**

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

July 10, 2017

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL425454	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F11003
<b>Lab Sample ID:</b> 425454002	<b>Date Collected:</b> 06/13/2017 09:45	<b>Matrix:</b> WATER
	<b>Date Received:</b> 06/14/2017 09:20	
<b>Client ID:</b> B3B355	<b>Method:</b> C14_LSC	<b>Prep Basis:</b> "As Received"
<b>Batch ID:</b> 1674668	<b>Analyst:</b> BXM4	<b>SOP Ref:</b> GL-RAD-A-003
<b>Run Date:</b> 06/23/2017 03:44	<b>Aliquot:</b> 60.04 mL	<b>Instrument:</b> LSCRED
<b>Data File:</b> C1674668.xls	<b>Prep Method:</b> EPA EERF C-01 Modified	<b>Count Time:</b> 35 min
<b>Prep Batch:</b> 1674668		
<b>Prep Date:</b> 06/22/2017 09:53		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14		45.9	pCi/L	+/-18.9	20.7	30.1	50.0

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

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

July 10, 2017

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL425454	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F11003
<b>Lab Sample ID:</b> 425454002	<b>Date Collected:</b> 06/13/2017 09:45	<b>Matrix:</b> WATER
	<b>Date Received:</b> 06/14/2017 09:20	
<b>Client ID:</b> B3B355	<b>Method:</b> TRITIUM_DIST_LSC	<b>Prep Basis:</b> "As Received"
<b>Batch ID:</b> 1675960	<b>Analyst:</b> BXM4	<b>SOP Ref:</b> GL-RAD-A-002
<b>Run Date:</b> 07/06/2017 02:35	<b>Aliquot:</b> 50 mL	<b>Instrument:</b> LSCGREEN
<b>Data File:</b> T1675960R.xls	<b>Prep Method:</b> EPA 906.0 Modified	<b>Count Time:</b> 45 min
<b>Prep Batch:</b> 1675960		
<b>Prep Date:</b> 07/05/2017 09:31		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		3470	pCi/L	+/-343	754	362	400

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

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

July 10, 2017

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL425454	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F11003
<b>Lab Sample ID:</b> 425454002	<b>Date Collected:</b> 06/13/2017 09:45	<b>Matrix:</b> WATER
	<b>Date Received:</b> 06/14/2017 09:20	
<b>Client ID:</b> B3B355	<b>Method:</b> TC99_EIE_LSC	<b>Prep Basis:</b> "As Received"
<b>Batch ID:</b> 1675961	<b>Analyst:</b> CXS7	<b>SOP Ref:</b> GL-RAD-A-059
<b>Run Date:</b> 07/04/2017 13:25	<b>Aliquot:</b> 100 mL	<b>Instrument:</b> LSCGREEN
<b>Data File:</b> E1675961R.xls	<b>Prep Method:</b> DOE EML HASL-300, Tc-02-	<b>Count Time:</b> 20 min
<b>Prep Batch:</b> 1675961		
<b>Prep Date:</b> 06/29/2017 13:52		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	16.5	pCi/L	+/-24.2	24.3	41.0	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	28900	33500	CPM	86.2	(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.

July 10, 2017

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL425454	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F11003
<b>Lab Sample ID:</b> 425454003	<b>Date Collected:</b> 06/13/2017 07:45	<b>Matrix:</b> WATER
	<b>Date Received:</b> 06/14/2017 09:20	
<b>Client ID:</b> B3B360	<b>Method:</b> SRTOT_SEP_PRECIP_GPC	<b>Prep Basis:</b> "As Received"
<b>Batch ID:</b> 1675562	<b>Analyst:</b> BXF1	<b>SOP Ref:</b> GL-RAD-A-004
<b>Run Date:</b> 06/27/2017 14:03	<b>Aliquot:</b> 300 mL	<b>Instrument:</b> PIC7C
<b>Data File:</b> S1675562r.xls	<b>Prep Method:</b> EPA 905.0 Modified/DOE RP5	<b>Count Time:</b> 60 min
<b>Prep Batch:</b> 1675562		
<b>Prep Date:</b> 06/21/2017 13:05		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
SR-RAD	Total Strontium	U	1.43	pCi/L	+/-0.982	1.04	1.49	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	5.10	7.75	mg	65.8	(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.

July 10, 2017

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL425454	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F11003
<b>Lab Sample ID:</b> 425454003	<b>Date Collected:</b> 06/13/2017 07:45	<b>Matrix:</b> WATER
	<b>Date Received:</b> 06/14/2017 09:20	
<b>Client ID:</b> B3B360	<b>Method:</b> C14_LSC	<b>Prep Basis:</b> "As Received"
<b>Batch ID:</b> 1674668	<b>Analyst:</b> BXM4	<b>SOP Ref:</b> GL-RAD-A-003
<b>Run Date:</b> 06/23/2017 04:20	<b>Aliquot:</b> 60.02 mL	<b>Instrument:</b> LSCRED
<b>Data File:</b> C1674668.xls	<b>Prep Method:</b> EPA EERF C-01 Modified	<b>Count Time:</b> 35 min
<b>Prep Batch:</b> 1674668		
<b>Prep Date:</b> 06/22/2017 09:53		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14	U	-9.63	pCi/L	+/-17.0	17.0	30.0	50.0

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

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

July 10, 2017

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL425454	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F11003
<b>Lab Sample ID:</b> 425454003	<b>Date Collected:</b> 06/13/2017 07:45	<b>Matrix:</b> WATER
	<b>Date Received:</b> 06/14/2017 09:20	
<b>Client ID:</b> B3B360	<b>Method:</b> TRITIUM_DIST_LSC	<b>Prep Basis:</b> "As Received"
<b>Batch ID:</b> 1675960	<b>Analyst:</b> BXM4	<b>SOP Ref:</b> GL-RAD-A-002
<b>Run Date:</b> 07/06/2017 03:22	<b>Aliquot:</b> 50 mL	<b>Instrument:</b> LSCGREEN
<b>Data File:</b> T1675960R.xls	<b>Prep Method:</b> EPA 906.0 Modified	<b>Count Time:</b> 45 min
<b>Prep Batch:</b> 1675960		
<b>Prep Date:</b> 07/05/2017 09:31		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-28.4	pCi/L	+/-201	201	356	400

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

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

July 10, 2017

**Certificate of Analysis  
Sample Summary**

<b>SDG Number:</b> GEL425454	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0F11003
<b>Lab Sample ID:</b> 425454003	<b>Date Collected:</b> 06/13/2017 07:45	<b>Matrix:</b> WATER
	<b>Date Received:</b> 06/14/2017 09:20	
<b>Client ID:</b> B3B360	<b>Method:</b> TC99_EIE_LSC	<b>Prep Basis:</b> "As Received"
<b>Batch ID:</b> 1675961	<b>Analyst:</b> CXS7	<b>SOP Ref:</b> GL-RAD-A-059
<b>Run Date:</b> 07/04/2017 13:46	<b>Aliquot:</b> 100 mL	<b>Instrument:</b> LSCGREEN
<b>Data File:</b> E1675961R.xls	<b>Prep Method:</b> DOE EML HASL-300, Tc-02-	<b>Count Time:</b> 20 min
<b>Prep Batch:</b> 1675961		
<b>Prep Date:</b> 06/29/2017 13:52		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	-7.75	pCi/L	+/-20.9	20.9	36.9	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	32300	33500	CPM	96.4	(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.

# Quality Control Summary

**QC Summary**

Report Date: July 7, 2017  
 Page 1 of 2

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

**Contact:** Mr. Scot Fitzgerald

**Workorder:** 425454

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
<b>Rad Gas Flow</b>									
Batch	1675562								
QC1203814971	MB								
Total Strontium			U	-0.503	pCi/L			BXF1	06/27/1714:03
				Uncert: +/-0.599					
				TPU: +/-0.599					
**Strontium Carrier		7.75		8.10	mg	REC: 105	(40%-110%)		
QC1203814972	425529001	DUP							
Total Strontium		4.60		3.40	pCi/L				06/27/1716:08
				Uncert: +/-1.51		RPD: 30	(0% - 100%)		
				TPU: +/-1.85		RER: 1.03	(0-2)		
**Strontium Carrier		7.75	4.10	5.60	mg	REC: 72	(40%-110%)		
QC1203814973	LCS								
Total Strontium		72.9		71.7	pCi/L	REC: 98	(80%-120%)		06/23/1711:13
				Uncert: +/-3.81					
				TPU: +/-16.9					
**Strontium Carrier		7.75		7.00	mg	REC: 90	(40%-110%)		
<b>Rad Liquid Scintillation</b>									
Batch	1674668								
QC1203812815	MB								
Carbon-14			U	2.19	pCi/L			BXM4	06/23/1706:45
				Uncert: +/-17.4					
				TPU: +/-17.4					
QC1203812816	425282001	DUP							
Carbon-14		65.6		46.9	pCi/L				06/23/1707:22
				Uncert: +/-19.6		RPD: 33	(0% - 100%)		
				TPU: +/-23.1		RER: 1.18	(0-2)		
QC1203812817	425282001	MS							
Carbon-14		1250	65.6	1210	pCi/L	REC: 92	(75%-125%)		06/23/1707:58
				Uncert: +/-19.6					
				TPU: +/-23.1					
QC1203812818	LCS								
Carbon-14		1250		1110	pCi/L	REC: 89	(80%-120%)		06/23/1708:14
				Uncert: +/-60.3					
				TPU: +/-215					
Batch	1675960								
QC1203815891	MB								
Tritium			U	66.7	pCi/L			BXM4	07/06/1708:59
				Uncert: +/-205					
				TPU: +/-206					
QC1203815892	425280008	DUP							
Tritium		9520		8980	pCi/L				07/06/1709:46
				Uncert: +/-495		RPD: 6	(0% - 20%)		
				TPU: +/-1910		RER: 0.403	(0-2)		
QC1203815893	425280008	MS							
Tritium		4480	9520	13900	pCi/L	REC: 97	(75%-125%)		07/07/1706:22

## QC Summary

Workorder: 425454

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
<b>Rad Liquid Scintillation</b>									
Batch	1675960								
		Uncert:	+/-495	+/-1500					
		TPU:	+/-1910	+/-3070					
QC1203815894	LCS								
Tritium	2230			2110	pCi/L	REC: 94 (80%-120%)			07/06/1710:48
		Uncert:		+/-470					
		TPU:		+/-622					
Batch	1675961								
QC1203815895	MB								
Technetium-99			U	-1.46	pCi/L			CXS7	07/04/1715:54
		Uncert:		+/-23.2					
		TPU:		+/-23.2					
**Technetium-99m Tracer	33500			29300	CPM	REC: 88 (30%-105%)			
QC1203815896	425384006	DUP							
Technetium-99		U	17.5	U	35.4				07/04/1716:16
		Uncert:	+/-20.8	+/-25.1		RPD: 0	N/A		
		TPU:	+/-20.9	+/-25.4		RER: 1.07	(0-2)		
**Technetium-99m Tracer	33500		33400	28900	CPM	REC: 86 (30%-105%)			
QC1203815897	LCS								
Technetium-99	861			713	pCi/L	REC: 83 (80%-120%)			07/05/1707:49
		Uncert:		+/-52.0					
		TPU:		+/-94.7					
**Technetium-99m Tracer	33500			26600	CPM	REC: 80 (30%-105%)			

**Notes:**

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

The Qualifiers in this report are defined as follows:

- B The associated QC sample blank has a result  $\geq 2X$  the MDA and, after corrections, result is  $\geq$  MDA for this sample
- D Results are reported from a diluted aliquot of sample.
- N Spike Sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- UX Gamma Spectroscopy--Uncertain identification
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

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

\*\* Indicates analyte is a surrogate compound.

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

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

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