

July 23, 2019

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

Re: CHPRC SAF F19-020
Work Order: 484101
SDG: GEL484101

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on July 09, 2019. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

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,



Anna Dupree for
Heather Shaffer
Project Manager

Purchase Order: 304973
Chain of Custody: F19-020-027, F19-020-028 and F19-020-093
Enclosures



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Case Narrative

**General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF F19-020
SDG: GEL484101**

July 23, 2019

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 July 09, 2019, 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
484101001	B3NF58
484101002	B3NF59
484101003	B3NHL9

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: GC/MS Volatile 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.



Anna Dupree for
Heather Shaffer
Project Manager

Technical Case Narrative
CH2MHill Plateau Remediation Company
SDG #: GEL484101
Work Order #: 484101

GC/MS Volatile

Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer

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/Methanol Dilutions

Sample 484101003 (B3NHL9) was diluted because target analyte concentrations exceeded the calibration range.

Analyte	484101
	003
Carbon tetrachloride	4X

Radiochemistry

I129LL_SEP_LEPS_GS: COMMON (low level)

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.

9310_ALPHABETA_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

Gross Alpha/Beta Preparation Information

High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating.

Recounts

Samples 1204327347 (B3NF59DUP) and 484101002 (B3NF59) were recounted due to high relative percent difference/relative error ratio. The recounts are reported.

Miscellaneous Information**Additional Comments**

The matrix spike and matrix spike duplicate, 1204327348 (B3NF59MS) and 1204327349 (B3NF59MSD), aliquots were reduced to conserve sample volume.

TRITIUM_DIST_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.

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 applicable, with the following exceptions.

Technical Information**Recounts**

Samples 1204327406 (MB) and 1204327408 (LCS) were recounted due to the quench number being outside the calibration range. The recounts 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

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F19-020-027	PAGE 1 OF 1
COLLECTOR Ed Krieger CHPRC 1-314	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR SUMNER, LC	REQUIRED TAT 15 Days	
SAMPLING LOCATION C9955, I-016	PROJECT DESIGNATION 200-UP-1 Remedial Action Wells Sampling and Analysis - Water	FIELD LOGBOOK NO. HNF-N-645-13/88	SAF NO. F19-020	METHOD OF SHIPMENT FEDERAL EXPRESS	
ICE CHEST NO. 1318 6WS-602	ACTUAL SAMPLE DEPTH 347.99	OFFSITE PROPERTY NO. 80-1-274	PURCHASE ORDER/CHARGE CODE 304973	ORIGINAL	
SHIPPED TO GEL Laboratories, LLC	PRESERVATION HCl or H2SO4 to pH <2 / Cool <=6C	11293	BILL OF LADING/AIR BILL NO. 7756	52427190	
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.	HOLDING TIME 14 Days	TYPE OF CONTAINER aGS*		
SPECIAL HANDLING AND/OR STORAGE N/A	VOLUME 40mL	NO. OF CONTAINER(S) 4	SAMPLE ANALYSIS 8260, VOL, GC/M S: CO/MON (Carbon tetrachloride, Trichloroethene Y)		
SAMPLE NO. B3NF58	FILTERED No	MATRIX* WATER	SAMPLE DATE JUL 03 2019	SAMPLE TIME 0950	

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM Jeff Tuckson CHPRC	DATE/TIME JUL 03 2019 1020	SIGN/ PRINT NAMES Troy Bacon CHPRC	DATE/TIME JUL 03 2019 1020	SPECIAL INSTRUCTIONS TRVL-19-053
Troy Bacon CHPRC	JUL 03 2019 1400	SSU-1 JUL 03 2019 1400	JUL 03 2019 1400	
Janelle Zunkler CHPRC	JUL 08 2019 0745	Janelle Zunkler CHPRC	JUL 08 2019 0745	
Janelle Zunkler CHPRC	JUL 08 2019 1500	Stacy Boone/ GEL Laboratories	JUL 09 2019 850	
DISPOSAL METHOD	FED EX	DISPOSED BY		
FINAL SAMPLE DISPOSITION				
DATE/TIME				

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST PAGE 1 OF 1

CH2M Hill Plateau Remediation Company F19-020-028

COLLECTOR Jeff Tucksen
CHPRC PROJECT COORDINATOR
SUMNER, LC

SAMPLING LOCATION C9955, I-016 REQUIRED TAT
15 Days

ICE CHEST NO. GWS-725
602 METHOD OF SHIPMENT
ORIGINAL

SHIPPED TO GEL Laboratories, LLC PURCHASE ORDER/CHARGE CODE
304973

GEL LABORATORY NO. 1319 BILL OF LADING/AIR BILL NO.
7756 5242 7190

COMPANY CONTACT SUMNER, LC SAF NO.
F19-020

TELEPHONE NO. 376-3922 PURCHASE ORDER/CHARGE CODE
304973

PROJECT DESIGNATION 200-UP-1 Remedial Action Wells Sampling and Analysis - Water METHOD OF SHIPMENT
FEDERAL EXPRESS

FIELD LOGBOOK NO. HNF-N-645-13/88 ACTUAL SAMPLE DEPTH
347.79

OFFSITE PROPERTY NO. 11293 ACTUAL SAMPLE DEPTH
11293

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	HNO3 to pH	None	HNO3 to pH	<2	None	HNO3 to pH	<2	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	*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	6 Months	6 Months	6 Months
	HOLDING TIME	G/P	4	1	1	1	1	1	1	1
	TYPE OF CONTAINER	P	✓	✓	✓	✓	✓	✓	✓	✓
	NO. OF CONTAINER(S)	1L	1L	1L	1L	1L	1L	1L	1L	1L
	VOLUME	9310_ALPHA TA_GPC COMMON (Gross alpha, Gross beta);	12911_SEP_LE PS_GS COMMON;	TC99_EIE_LSC COMMON;	TRITIUM_DIST LSC COMMON;	250mL	250mL	250mL	250mL	250mL
	SPECIAL HANDLING AND/OR STORAGE	N/A								
SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME						
B3NFS9	Yes	WATER	JUL 03 2019	0950	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION SPECIAL INSTRUCTIONS
TRVL-19-053

RELINQUISHED BY/REMOVED FROM DATE/TIME

Jeff Tucksen
CHPRC JUL 03 2019 1020

Tim Callaway
CHPRC JUL 03 2019 1400

SSU-1 JUL 03 2019 1400

Janelle Zurker
CHPRC JUL 08 2019 0740

Janelle Zurker
CHPRC JUL 08 2019 0740

Janelle Zurker
CHPRC JUL 08 2019 1400

SSU-1 JUL 08 2019 1400

Janelle Zurker
CHPRC JUL 09 2019 50

Stacy Boone/
GEL Laboratories JUL 09 2019 50

FINAL SAMPLE DISPOSITION DISPOSAL METHOD

DATE/TIME

DISPOSED BY

FRS ID = FSR75336 TRVL NUM = TRVL-19-053

PRINTED ON 1/30/2019 A-6003-618 (REV 3)

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F19-020-093	PAGE 1 OF 1
COLLECTOR	Jeff Tucksen CHPRC	COMPANY CONTACT	SUMNER, LC	PROJECT COORDINATOR	SUMNER, LC
SAMPLING LOCATION	C9604, I-016	PROJECT DESIGNATION	200-UP-1 Remedial Action Wells Sampling and Analysis - Water	SAF NO.	F19-020
ICE CHEST NO.	GWS-725	FIELD LOGBOOK NO.	HNF-N-645 13-88	PURCHASE ORDER/CHARGE CODE	304973
SHIPPED TO	GEL Laboratories, LLC	OFFSITE PROPERTY NO.	11293	BILL OF LADING/AIR BILL NO.	7750 5242 7190

MATRIX*	A=Air DL=Drum L=Liquids DS=Drum S=Solids L=Liquid O=Oil S=Soil SF=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	HCl or H2SO4 to pH <2/Cool <=6C
		*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.	HOLDING TIME	14 Days
			TYPE OF CONTAINER	865*
			NO. OF CONTAINER(S)	4
			VOLUME	40mL
			SAMPLE ANALYSIS	8260_VOA_GCM S: COMBION (Carbon tetrachloride, Trichloroethene)
SPECIAL HANDLING AND/OR STORAGE	N/A			

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME
B3NHL9	No	WATER	JUL 03 2019	1226

CHAIN OF POSSESSION	RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME	SPECIAL INSTRUCTIONS
Jeff Tucksen CHPRC		JUL 03 2019	SSU-1		JUL 03 2019	TRVL-19-059
		JUL 08 2019	Janelle Zunker CHPRC		JUL 08 2019	
Janelle Zunker CHPRC		JUL 08 2019	FEDEX		JUL 09 2019	
			Stacy Boone/ GEL Laboratories			



Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: CPRC		SDG/AR/COC/Work Order: 494101		
Received By: SB		Date Received: 7/9/19		
Carrier and Tracking Number		Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 7756 5242 7190 - 1c 7756 5786 1794 - 1c 7756 5786 1886 - 1c 7756 5786 2106 - 1c		
Suspected Hazard Information	Yes <input type="checkbox"/> No <input type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.		
A) Shipped as a DOT Hazardous?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____ If UN2910, Is the Radioactive Shipment Survey Compliant? Yes ___ No ___		
B) Did the client designate the samples are to be received as radioactive?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	COC notation or radioactive stickers on containers equal client designation.		
C) Did the RSO classify the samples as radioactive?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u> CPM / mR/Hr Classified as: <u>Rad 1</u> Rad 2 Rad 3		
D) Did the client designate samples are hazardous?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	COC notation or hazard labels on containers equal client designation.		
E) Did the RSO identify possible hazards?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If D or E is yes, select Hazards below. 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?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Client contacted and provided COC COC created upon receipt
3 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Preservation Method: <u>Wet Ice</u> Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: _____
4 Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>IRI-19</u> Secondary Temperature Device Serial # (If Applicable):
5 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's and Containers Affected: If Preservation added, Lot#:
7 Do any samples require Volatile Analysis?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	If Yes, are Encores or Soil Kits present for solids? Yes ___ No ___ NA ___ (If yes, take to VOA Freezer)
				Do liquid VOA vials contain acid preservation? Yes <input checked="" type="checkbox"/> No ___ NA ___ (If unknown, select No)
				Are liquid VOA vials free of headspace? Yes <input checked="" type="checkbox"/> No ___ NA ___ Sample ID's and containers affected:
8 Samples received within holding time?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ID's and containers affected:
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: No container count on COC Other (describe)
12 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Not relinquished Other (describe)
Comments (Use Continuation Form if needed):				

PM (or PMA) review: Initials AS Date 7/9/19 Page 1 of 1

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.		
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 analyte was detected in the associated method blank >= MDC or >5% sample activity.	Radiological	
Y	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
+	Correlation coefficient for Method of Standard Additions (MSA) is < 0.995	Inorganics	
B	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	General Chemistry	
C	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	Inorganics	Metals
C	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	General Chemistry	
<	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide	General Chemistry	
UX	Gamma Spectroscopy--Uncertain identification	Radiological	
o	Analyte failed to recover within LCS limits	Radiological	Rad

Laboratory Certifications

List of current GEL Certifications as of 23 July 2019

State	Certification
Alaska	17-018
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
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	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2019020
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122019-3
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-19-15
Utah NELAP	SC000122019-28
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Volatile Analysis

Case Narrative

**GC/MS Volatile
 Technical Case Narrative
 CH2M Hill Plateau Remediation Company
 SDG #: GEL484101
 Work Order #: 484101**

Product: Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer

Analytical Method: SW846 8260C

Analytical Procedure: GL-OA-E-038 REV# 27

Analytical Batch: 1894066

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
484101001	B3NF58
484101003	B3NHL9
1204325810	Method Blank (MB)
1204325811	Laboratory Control Sample (LCS)
1204325812	483547001(B3NHL4) Post Spike (PS)
1204325813	483547001(B3NHL4) Post Spike Duplicate (PSD)
1204326673	Method Blank (MB)
1204326674	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

Sample Dilutions/Methanol Dilutions

Sample 484101003 (B3NHL9) was diluted because target analyte concentrations exceeded the calibration range.

Analyte	484101
	003
Carbon tetrachloride	4X

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: GEL484101 GEL Work Order: 484101

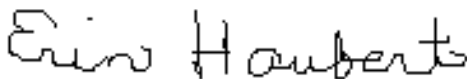
The Qualifiers in this report are defined as follows:

- 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
- 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: 

Name: Erin Haubert

Date: 22 JUL 2019

Title: Data Validator

Sample Data Summary

Volatile

Page 1 of 1

**Certificate of Analysis
Sample Summary**

SDG Number: GEL484101	Date Collected: 07/03/2019 09:50	Matrix: WATER
Lab Sample ID: 484101001	Date Received: 07/09/2019 08:50	
Client ID: B3NF58	Client: CPRC001	Project: CPRC0F19020
Batch ID: 1894066	Method: SW846 8260C	SOP Ref: GL-OA-E-038
Run Date: 07/09/2019 17:06	Inst: VOA3.I	Dilution: 1
Prep Date: 07/09/2019 17:06	Analyst: JP1	Purge Vol: 5 mL
Data File: 070919V3\3O205.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride		89.0	ug/L	0.300	2.00	5.00
79-01-6	Trichloroethylene		7.52	ug/L	0.300	2.00	5.00

Certificate of Analysis
Sample Summary

SDG Number: GEL484101	Date Collected: 07/03/2019 12:26	Matrix: WATER
Lab Sample ID: 484101003	Date Received: 07/09/2019 08:50	
Client ID: B3NHL9	Client: CPRC001	Project: CPRC0F19020
Batch ID: 1894066	Method: SW846 8260C	SOP Ref: GL-OA-E-038
Run Date: 07/09/2019 17:37	Inst: VOA3.I	Dilution: 1
Prep Date: 07/09/2019 17:37	Analyst: JP1	Purge Vol: 5 mL
Data File: 070919V3\3O206.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
79-01-6	Trichloroethylene	J	4.64	ug/L	0.300	2.00	5.00

Volatile

Page 1 of 1

Certificate of Analysis

Sample Summary

SDG Number:	GEL484101	Date Collected:	07/03/2019 12:26	Matrix:	WATER
Lab Sample ID:	484101003	Date Received:	07/09/2019 08:50	Project:	CPRC0F19020
Client ID:	B3NHL9DL	Client:	CPRC001	SOP Ref:	GL-OA-E-038
Batch ID:	1894066	Method:	SW846 8260C	Dilution:	4
Run Date:	07/09/2019 20:44	Inst:	VOA3.I	Purge Vol:	5 mL
Prep Date:	07/09/2019 20:44	Analyst:	JP1		
Data File:	070919V3\3O212.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	D	200	ug/L	1.20	8.00	5.00

Quality Control Summary

GEL LABORATORIES LLC

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

QC Summary

Report Date: July 22, 2019

CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 484101

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1894066										
QC1204326674	LCS										
Carbon tetrachloride	50.0			45.7	ug/L		91	(70%-130%)	JP1	07/09/19	15:33
Trichloroethylene	50.0			42.9	ug/L		86	(70%-130%)			
**1,2-Dichloroethane-d4	50.0			45.5	ug/L		91	(71%-134%)			
**Bromofluorobenzene	50.0			50.4	ug/L		101	(70%-131%)			
**Toluene-d8	50.0			46.1	ug/L		92	(74%-124%)			
QC1204326673 MB											
Carbon tetrachloride			U	0.300	ug/L					07/09/19	16:35
Trichloroethylene			U	0.300	ug/L						
**1,2-Dichloroethane-d4	50.0			43.4	ug/L		87	(71%-134%)			
**Bromofluorobenzene	50.0			51.4	ug/L		103	(70%-131%)			
**Toluene-d8	50.0			44.3	ug/L		89	(74%-124%)			

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

GEL LABORATORIES LLC

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QC Summary

Workorder: 484101

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time	
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
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 (Organics 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.

Surrogate Recovery Report

SDG Number: GEL484101

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1204325811	LCS for batch 1894066	97	93	111
1204325810	MB for batch 1894066	92	91	102
1204325812	B3NHL4PS	87	93	109
1204325813	B3NHL4PSD	87	91	105
1204326674	LCS for batch 1894066	91	92	101
1204326673	MB for batch 1894066	87	89	103
484101001	B3NF58	87	92	106
484101003	B3NHL9	88	94	107
484101003	B3NHL9DL	86 D	88 D	104 D

Surrogate

DCED4 = 1,2-Dichloroethane-d4

TOL = Toluene-d8

BFB = Bromofluorobenzene

Acceptance Limits

(71%-134%)

(74%-124%)

(70%-131%)

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
CH2M Hill Plateau Remediation Company
SDG #: GEL484101
Work Order #: 484101

Product: I129LL_SEP_LEPS_GS: COMMON (low level)

Analytical Method: DOE EML HASL-300,I-01 Modified

Analytical Procedure: GL-RAD-A-006 REV# 21

Analytical Batch: 1892994

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
484101002	B3NF59
1204323339	Method Blank (MB)
1204323340	483535001(NonSDG) Sample Duplicate (DUP)
1204323341	483535001(NonSDG) Matrix Spike (MS)
1204323342	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: 9310_ALPHABETA_GPC: COMMON

Analytical Method: 9310_ALPHABETA_GPC

Analytical Procedure: GL-RAD-A-001 REV# 20

Analytical Batch: 1894696

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
484101002	B3NF59
1204327346	Method Blank (MB)
1204327347	484101002(B3NF59) Sample Duplicate (DUP)
1204327348	484101002(B3NF59) Matrix Spike (MS)
1204327349	484101002(B3NF59) Matrix Spike Duplicate (MSD)
1204327350	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**Gross Alpha/Beta Preparation Information**

High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating.

Recounts

Samples 1204327347 (B3NF59DUP) and 484101002 (B3NF59) were recounted due to high relative percent difference/relative error ratio. The recounts are reported.

Miscellaneous Information**Additional Comments**

The matrix spike and matrix spike duplicate, 1204327348 (B3NF59MS) and 1204327349 (B3NF59MSD), aliquots were reduced to conserve sample volume.

Product: TRITIUM_DIST_LSC: COMMON

Analytical Method: TRITIUM_DIST_LSC

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

Analytical Batch: 1894403

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
484101002	B3NF59
1204326618	Method Blank (MB)
1204326619	484101002(B3NF59) Sample Duplicate (DUP)
1204326620	484101002(B3NF59) Matrix Spike (MS)
1204326621	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: TC99_EIE_LSC: COMMON

Analytical Method: TC99_EIE_LSC

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

Analytical Batch: 1894725

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
484101002	B3NF59
1204327406	Method Blank (MB)
1204327407	484101002(B3NF59) Sample Duplicate (DUP)
1204327408	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

Samples 1204327406 (MB) and 1204327408 (LCS) were recounted due to the quench number being outside the calibration range. The recounts 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

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**Qualifier Definition Report
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL484101 GEL Work Order: 484101

The Qualifiers in this report are defined as follows:

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

Review/Validation

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

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

Signature: 

Name: Kate Gellatly

Date: 22 JUL 2019

Title: Analyst I

Sample Data Summary

Certificate of Analysis
Sample Summary

SDG Number: GEL484101	Client: CPRC001	Project: CPRC0F19020
Lab Sample ID: 484101002	Date Collected: 07/03/2019 09:50	Matrix: WATER
	Date Received: 07/09/2019 08:50	
Client ID: B3NF59	Method: 9310_ALPHABETA_GPC	Prep Basis: "As Received"
Batch ID: 1894696	Analyst: HXB2	SOP Ref: GL-RAD-A-001
Run Date: 07/15/2019 12:13	Aliquot: 150 mL	Instrument: PIC11D
Data File: AB1894696r1.xls	Prep Method: EPA 900.0/SW846 9310	Count Time: 100 min
Prep Batch: 1894696		
Prep Date: 07/11/2019 07:21		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
12587-46-1	Alpha ALPHA	U	1.76	pCi/L	+/-1.82	1.84	2.91	3.00
12587-47-2	Beta BETA		139	pCi/L	+/-5.83	23.3	2.46	4.00

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

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

**Certificate of Analysis
Sample Summary**

SDG Number: GEL484101	Client: CPRC001	Project: CPRC0F19020
Lab Sample ID: 484101002	Date Collected: 07/03/2019 09:50	Matrix: WATER
	Date Received: 07/09/2019 08:50	
Client ID: B3NF59	Method: DOE EML HASL-300,I-01 Mo	Prep Basis: "As Received"
Batch ID: 1892994	Analyst: BSW1	SOP Ref: GL-RAD-A-006
Run Date: 07/11/2019 11:57	Aliquot: 1.2 L	Instrument: XRAY6
Data File: I484101002.CNF;1	Prep Method: DOE EML HASL-300,I-01 M	Count Time: 120 min
Prep Batch: 1892994		
Prep Date: 07/10/2019 11:16		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	0.144	pCi/L	+/-0.379	0.384	0.882	1.00

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

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

**Certificate of Analysis
Sample Summary**

SDG Number: GEL484101	Client: CPRC001	Project: CPRC0F19020
Lab Sample ID: 484101002	Date Collected: 07/03/2019 09:50	Matrix: WATER
	Date Received: 07/09/2019 08:50	
Client ID: B3NF59	Method: TRITIUM_DIST_LSC	Prep Basis: "As Received"
Batch ID: 1894403	Analyst: RP1	SOP Ref: GL-RAD-A-002
Run Date: 07/10/2019 18:11	Aliquot: 50 mL	Instrument: LSCGREEN
Data File: T1894403.xls	Prep Method: EPA 906.0 Modified	Count Time: 50 min
Prep Batch: 1894403		
Prep Date: 07/10/2019 08:32		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium	U	-2.0	pCi/L	+/-169	169	299	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.

**Certificate of Analysis
Sample Summary**

SDG Number: GEL484101	Client: CPRC001	Project: CPRC0F19020
Lab Sample ID: 484101002	Date Collected: 07/03/2019 09:50	Matrix: WATER
	Date Received: 07/09/2019 08:50	
Client ID: B3NF59	Method: TC99_EIE_LSC	Prep Basis: "As Received"
Batch ID: 1894725	Analyst: GXR1	SOP Ref: GL-RAD-A-059
Run Date: 07/16/2019 08:27	Aliquot: 100 mL	Instrument: LSCRED
Data File: E1894725r.xls	Prep Method: DOE EML HASL-300, Tc-02-	Count Time: 20 min
Prep Batch: 1894725		
Prep Date: 07/12/2019 11:44		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		236	pCi/L	+/-31.3	40.7	41.2	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	45000	49800	CPM	90.4	(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

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

Contact: Mr. Scot Fitzgerald

Workorder: 484101

Report Date: July 22, 2019
 Page 1 of 3

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gamma Spec									
Batch	1892994								
QC1204323339	MB								
Iodine-129			U	0.0862	pCi/L			BSW1	07/11/1918:55
				Uncert: +/-0.400					
				TPU: +/-0.402					
QC1204323340	483535001	DUP							
Iodine-129		U	0.467	U	0.604				07/11/1918:56
				Uncert: +/-0.448		RPD: 0	N/A		
				TPU: +/-0.497		RER: 0.308	(0-2)		
QC1204323341	483535001	MS							
Iodine-129		U	0.467		34.7	REC: 91	(75%-125%)		07/11/1918:57
				Uncert: +/-0.448					
				TPU: +/-0.497					
QC1204323342	LCS								
Iodine-129					31.4	REC: 83.5	(80%-120%)		07/12/1905:34
				Uncert: +/-3.40					
				TPU: +/-4.63					
Rad Gas Flow									
Batch	1894696								
QC1204327346	MB								
Alpha			U	0.463	pCi/L			HXB2	07/13/1918:24
				Uncert: +/-1.42					
				TPU: +/-1.42					
Beta			U	-0.787	pCi/L				
				Uncert: +/-1.50					
				TPU: +/-1.50					
QC1204327347	484101002	DUP							
Alpha		U	1.76	U	0.581				07/15/1912:13
				Uncert: +/-1.82		RPD: 0	N/A		
				TPU: +/-1.84		RER: 0.977	(0-2)		
Beta				139	141				
				Uncert: +/-5.83		RPD: 1	(0%-20%)		
				TPU: +/-23.3		RER: 0.0923	(0-2)		
QC1204327348	484101002	MS							
Alpha		U	1.76		243	REC: 97	(75%-125%)		07/13/1918:24
				Uncert: +/-1.82					
				TPU: +/-1.84					
Beta				929	139	REC: 99.6	(75%-125%)		
				Uncert: +/-5.83					
				TPU: +/-23.3					
QC1204327349	484101002	MSD							
Alpha		U	1.76		250	REC: 99.7	(75%-125%)		07/13/1918:24
				Uncert: +/-1.82		RPD: 3	(0%-20%)		
				TPU: +/-1.84		RER: 0.195	(0-2)		
Beta				929	139	REC: 98.5	(75%-125%)		
				Uncert: +/-5.83		RPD: 1	(0%-20%)		
				TPU: +/-34.6					

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QC Summary

Workorder: 484101

Page 2 of 3

Parname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date	Time
Rad Gas Flow										
Batch	1894696									
		TPU:	+/-23.3							
						RER:	0.0819	(0-2)		
QC1204327350	LCS									
Alpha	83.5			85.1	pCi/L	REC:	102	(80%-120%)		07/13/1918:24
		Uncert:		+/-7.72						
		TPU:		+/-16.0						
Beta	310			323	pCi/L	REC:	104	(80%-120%)		
		Uncert:		+/-11.1						
		TPU:		+/-53.7						
Rad Liquid Scintillation										
Batch	1894403									
QC1204326618	MB									
Tritium			U	155	pCi/L				RP1	07/11/1900:15
		Uncert:		+/-177						
		TPU:		+/-179						
QC1204326619	484101002	DUP								
Tritium		U	-2.0	U	8.81	pCi/L				07/11/1901:07
		Uncert:	+/-169		+/-169		RPD:	0	N/A	
		TPU:	+/-169		+/-169		RER:	0.0885	(0-2)	
QC1204326620	484101002	MS								
Tritium	5990	U	-2.0		5340	pCi/L	REC:	89.1	(75%-125%)	07/11/1901:59
		Uncert:	+/-169		+/-363					
		TPU:	+/-169		+/-1090					
QC1204326621	LCS									
Tritium	5980				5550	pCi/L	REC:	92.7	(80%-120%)	07/11/1902:51
		Uncert:			+/-372					
		TPU:			+/-1130					
Batch	1894725									
QC1204327406	MB									
Technetium-99			U	-10.8	pCi/L				GXR1	07/18/1902:08
		Uncert:		+/-21.2						
		TPU:		+/-21.2						
**Technetium-99m Tracer	49800				48000	CPM	REC:	96	(30%-105%)	
QC1204327407	484101002	DUP								
Technetium-99			236		209	pCi/L				07/16/1913:11
		Uncert:	+/-31.3		+/-28.4		RPD:	12	(0%-20%)	
		TPU:	+/-40.7		+/-36.6		RER:	0.969	(0-2)	
**Technetium-99m Tracer	49800		45000		47700	CPM	REC:	96	(30%-105%)	
QC1204327408	LCS									
Technetium-99	854				727	pCi/L	REC:	85.1	(80%-120%)	07/18/1902:30
		Uncert:			+/-41.2					
		TPU:			+/-90.2					
**Technetium-99m Tracer	49800				46400	CPM	REC:	93	(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:

QC Summary

Workorder: 484101

Page 3 of 3

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date	Time
A						The TIC is a suspected aldol-condensation product				
B						The analyte was detected in both the associated QC blank and in the sample.				
B						The analyte was detected in the associated method blank >= MDC or >5% sample activity.				
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				
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				
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.				
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				
o						Analyte failed to recover within LCS limits				
o						Analyte failed to recover within LCS limits (Organics 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 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.