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

June 27, 2016

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

Re: CHPRC SAF X16-033
Work Order: 398441
SDG: GEL398441

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 01, 2016. 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,

Heather Shaffer

Heather Shaffer
Project Manager

Purchase Order: 303064 - 7H
Chain of Custody: X16-033-054
Enclosures

Table of Contents

Case Narrative

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF X16-033
SDG: GEL398441

June 27, 2016

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 01, 2016, for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

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

Sample Identification
The laboratory received the following samples:

Laboratory Identification	Sample Description
398441001	B358C9
398441002	B358D1

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, General Chemistry, 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.

June 28, 2016

Heather Shaffer

Heather Shaffer
Project Manager

Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL398441
Work Order #: 398441

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 acceptance criteria for surrogate recovery. However, there was no more sample aliquot available for re-extraction.

Sample	Analyte	Value
1203560681 (B358C9MS)	o-Terphenyl	54* (60%-140%)
1203560682 (B358C9MSD)	o-Terphenyl	59* (60%-140%)
398441001 (B358C9)	o-Terphenyl	55* (60%-140%)

Laboratory Control Sample (LCS/LCSD) Recovery
The LCS (See Below) did not meet the client-specific acceptance limits. There was no more sample aliquot available for a re-extraction, so the PM was contacted and the results were reported.

Sample	Analyte	Value
1203560680 (LCS)	Diesel Range Organics	68* (70%-130%)

Matrix Spike (MS/MSD) Recovery Statement
The MS/MSD (See Below) did not meet the client-specific acceptance limits. There was no more sample aliquot available for a re-extraction, so the PM was contacted and the results were reported.

Sample	Analyte	Value
1203560681 (B358C9MS)	Diesel Range Organics	57* (70%-130%)
1203560682 (B358C9MSD)	Diesel Range Organics	61* (70%-130%)

Miscellaneous Information

Manual Integrations
Samples 1203560680 (LCS), 1203560681 (B358C9MS), 1203560682 (B358C9MSD) and 398441001 (B358C9) required manual integration to correctly position the baseline as set in the calibration standard injections.

Metals

Determination of Metals by ICP

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

CRDL/PQL Requirements
The PQL standard recoveries for SW846 6010C or 6010D met the control limits with the exception of potassium. Client sample concentrations were less than the MDL or greater than two times the PQL; therefore the data were not adversely affected. 398441001 (B358C9) and 398441002 (B358D1).

Quality Control (QC) Information

Method Blank (MB) Statement
The method blanks (MB) analyzed with this SDG met the exception criteria with the exception of potassium. In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data. 1203559388 (MB).

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.

Quality Control (QC) Information

Method Blank (MB) Statement
The method blanks (MB) analyzed with this SDG met the exception criteria with the exception of thallium. In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data. 1203559436 (MB).

Determination of Metals by ICP-MS

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.

General Chemistry

Carbon, Total Organic

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 following samples 1203561745 (Non SDG 398421002DUP) and 1203561748 (Non SDG 398421002PS) were diluted because target analyte concentrations exceeded the calibration range. The following samples were originally diluted at 500X due to the matrix of the sample. The samples were re-analyzed at 20X ,the lowest dilution possible in order to bring the samples results within the required reporting limits,however the final results were less then the PQL which maybe due to matrix interference. The data is being reported. 1203561745 (Non SDG 398421002DUP) and 1203561748 (Non SDG 398421002PS).

Radiochemistry

SRISO_SEP_PRECIP_GPC: COMMON

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

Quality Control (QC) Information

QC Information
The sample and duplicate, 1203566156 (Non SDG 398676005DUP), do not meet the client relative error ratio requirement; however, both sample and duplicate results are less than the minimum detectable activity.

Technical Information

Recounts
Sample 1203566157 (LCS) was recounted due to high recovery. The recount is reported. Sample 1203566155 (MB) was recounted due to a suspected blank false positive. The recount is reported. Sample 398441001 (B358C9) was verified by recounting at least five days from the separation date. The recount is reported.

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.

Miscellaneous Information

Additional Comments
The matrix spike and matrix spike duplicate, 1203566172 (B358P0MS) and 1203566173 (B358P0MSD), aliquots were reduced to conserve sample volume.

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

598441 8 1 LBS.

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **X16-033-054**

Page 1 of 1

Collector	D.L. Floyd/CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	X16-033	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	303064
Project Title	AQUIFER TUBES, JUNE 2016	**Logbook No.**	HNF-N-506 791 23	**Ice Chest No.**	GWS-456
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7764 0929 2190
Protocol	CERCLA	**Priority:**	**30 Days** PRIORITY	**Offsite Property No.**	6677

POSSIBLE SAMPLE HAZARDS/REMARKS

** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B358C9	N	W	5-31-16	1111	1x500-mL G/P	6020_METALS_ICPMS: GW 01; 6010_METALS_ICP: GW 04	6 Months	HNO3 to pH <2
B358C9	N	W	↓	↓	1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C
B358C9	N	W			2x1-L P	9310_ALPHABETA_GPC: COMMON	6 Months	HNO3 to pH <2
B358C9	N	W			3x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2
B358C9	N	W			3x1-L aG	WTPH_DIESEL: COMMON	14/40 Days	HCl to pH <2/Cool <=6C
B358D1	Y	W			1x500-mL G/P	6020_METALS_ICPMS: GW 01; 6010_METALS_ICP: GW 04	6 Months	HNO3 to pH <2

Relinquished By D.L. Floyd/CHPRC Print / Sign	Date/Time MAY 31 2016 1227	Received By Troy Bacon CHPRC Print / Sign Troy L. Bacon	Date/Time MAY 31 2016 1227
Relinquished By Troy Bacon CHPRC Troy L. Bacon	Date/Time MAY 31 2016 1400	Received By FEDEX	Date/Time
Relinquished By FED EX	Date/Time	Received By Patricia Dent P. Dent	Date/Time 6/1/16 0905
Relinquished By	Date/Time	Received By	Date/Time

Matrix *

S = Soil	DS = Drum Solids		
SE = Sediment	DL = Drum Liquids		
SO = Solid	T = Tissue		
SL = Sludge	WI = Wipe		
W = Water	L = Liquid		
O = Oil	V = Vegetation		
A = Air	X = Other		

FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

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PRINTED ON 4/21/2016

FSR ID = FSR31733

A-6004-842 (REV 2)

June 28, 2016

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: CRRC	**SDG/AR/COC/Work Order:** 398441
Received By: D Nant	**Date Received:** 6/1/16

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	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	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius 1°C
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): 201404337
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	✓			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	Do Low Level Perchlorate samples have headspace as required?		✓		Sample ID's and containers affected:
7	VOA vials contain acid preservation?		✓		(If unknown, select No)
8	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
9	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
10	Samples received within holding time?	✓			ID's and tests affected:
11	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
12	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
13	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
14	Are sample containers identifiable as GEL provided?			✓	
15	COC form is properly signed in relinquished/received sections?	✓			
16	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 7764 0929 2190-1°C

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials DS Date 6/2/16 Page 1 of 1

GL-CHL-SR-001 Rev 3

Data Review Qualifier Definitions

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

Report Date: 27−JUN−16

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 27 June 2016

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	LA160006
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122016−1
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	T104704235−16−11
Utah NELAP	SC000122016−20
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

FID Diesel Range Organics Analysis

Case Narrative

Diesel Range Organics
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL398441
Work Order #: 398441

Product: **Analysis of Diesel Range Organics by Flame Ionization Detector**
Analytical Method: NWTPH-Dx
Analytical Procedure: GL-OA-E-003 REV# 26
Analytical Batch: 1571928

Preparation Method: SW846 3535A
Preparation Procedure: GL-OA-E-013 REV# 29
Preparation Batch: 1571927

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

GEL Sample ID#	Client Sample Identification
398441001	B358C9
1203560679	Method Blank (MB)
1203560680	Laboratory Control Sample (LCS)
1203560681	398441001(B358C9) Matrix Spike (MS)
1203560682	398441001(B358C9) Matrix Spike Duplicate (MSD)

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.

Quality Control (QC) Information

Surrogate Recoveries
Samples (See Below) did not meet acceptance criteria for surrogate recovery. However, there was no more sample aliquot available for re-extraction.

Sample	Analyte	Value
1203560681 (B358C9MS)	o-Terphenyl	54* (60%-140%)
1203560682 (B358C9MSD)	o-Terphenyl	59* (60%-140%)
398441001 (B358C9)	o-Terphenyl	55* (60%-140%)

Laboratory Control Sample (LCS/LCSD) Recovery
The LCS (See Below) did not meet the client-specific acceptance limits. There was no more sample aliquot available for a re-extraction, so the PM was contacted and the results were reported.

Sample	Analyte	Value

1203560680 (LCS)	Diesel Range Organics	68* (70%-130%)

Matrix Spike (MS/MSD) Recovery Statement
The MS/MSD (See Below) did not meet the client-specific acceptance limits. There was no more sample aliquot available for a re-extraction, so the PM was contacted and the results were reported.

Sample	Analyte	Value
1203560681 (B358C9MS)	Diesel Range Organics	57* (70%-130%)
1203560682 (B358C9MSD)	Diesel Range Organics	61* (70%-130%)

Miscellaneous Information

Manual Integrations
Samples 1203560680 (LCS), 1203560681 (B358C9MS), 1203560682 (B358C9MSD) and 398441001 (B358C9) 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

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

Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL398441 GEL Work Order: 398441

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: Jimi Cao **Name: Jimin Cao**

Date: 09 JUN 2016 **Title: Data Validator**

Sample Data Summary

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**GEL398441**	**Date Collected:**	**05/31/2016 11:11**	**Matrix:**	**WATER**
Lab Sample ID:	**398441001**	**Date Received:**	**06/01/2016 09:05**		
		Client:	**CPRC001**	**Project:**	**CPRC0X16033**
Client ID:	**B358C9**	**Method:**	**NWTPH-Dx**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1571928**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**06/07/2016 23:53**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/06/2016 09:40**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**060716DRO\f7F0716.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
68334-30-5	Diesel Range Organics	JT	77.4	ug/L	50.0	200

Quality Control Summary

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

QC Summary

Report Date: June 10, 2016

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **398441**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Diesel Range Organics										
Batch 1571928										
QC1203560680 LCS										
Diesel Range Organics	1000			679	ug/L		68*	(70%-130%)	LXA1	06/07/16 23:13
**o-Terphenyl	20.0			13.8	ug/L		69	(60%-140%)		
QC1203560679 MB										
Diesel Range Organics			U	50.0	ug/L					06/07/16 22:34
**o-Terphenyl	20.0			12.2	ug/L		61	(60%-140%)		
QC1203560681 398441001 MS										
Diesel Range Organics	1000	JT	77.4 T	644	ug/L		57*	(70%-130%)		06/08/16 00:32
**o-Terphenyl	20.0		10.7	10.9	ug/L		55*	(60%-140%)		
QC1203560682 398441001 MSD										
Diesel Range Organics	1000	JT	77.4 T	683	ug/L	6	61*	(0%-20%)		06/08/16 01:11
**o-Terphenyl	20.0		10.7	11.9	ug/L		60	(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

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

QC Summary

Workorder: **398441**

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

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.

Surrogate Recovery Report

SDG Number: GEL398441

Matrix Type: LIQUID

Sample ID	Client ID	OTP %REC
1203560679	MB for batch 1571927	61
1203560680	LCS for batch 1571927	69
398441001	B358C9	54 *
1203560681	B358C9MS	55 *
1203560682	B358C9MSD	60

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 #: GEL398441
Work Order #: 398441

Product: **Determination of Metals by ICP**
Analytical Method: 6010_METALS_ICP
Analytical Procedure: GL-MA-E-013 REV# 26
Analytical Batch: 1571435

Product: **Determination of Metals by ICP-MS**
Analytical Method: 6020_METALS_ICPMS
Analytical Procedure: GL-MA-E-014 REV# 28
Analytical Batches: 1571456 and 1573396

Preparation Method: SW846 3005A
Preparation Procedure: GL-MA-E-006 REV# 13
Preparation Batches: 1571434, 1571455 and 1573394

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

GEL Sample ID#	Client Sample Identification
398441001	B358C9
398441002	B358D1
1203559388	Method Blank (MB)**ICP**
1203559389	Laboratory Control Sample (LCS)
1203559392	398441001(B358C9L) Serial Dilution (SD)
1203559390	398441001(B358C9S) Matrix Spike (MS)
1203559391	398441001(B358C9SD) Matrix Spike Duplicate (MSD)
1203559436	Method Blank (MB)**ICP-MS**
1203564521	Method Blank (MB)**ICP-MS**
1203559437	Laboratory Control Sample (LCS)
1203564522	Laboratory Control Sample (LCS)
1203559440	398441001(B358C9L) Serial Dilution (SD)
1203564525	398441001(B358C9L) Serial Dilution (SD)
1203559438	398441001(B358C9S) Matrix Spike (MS)
1203564523	398441001(B358C9S) Matrix Spike (MS)
1203559439	398441001(B358C9SD) Matrix Spike Duplicate (MSD)
1203564524	398441001(B358C9SD) Matrix Spike Duplicate (MSD)

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.

Calibration Information

CRDL/PQL Requirements

The PQL standard recoveries for SW846 6010C or 6010D met the control limits with the exception of potassium. Client sample concentrations were less than the MDL or greater than two times the PQL; therefore the data were not adversely affected. 398441001 (B358C9) and 398441002 (B358D1)-ICP.

Quality Control (QC) Information

Method Blank (MB) Statement

The method blanks (MB) analyzed with this SDG met the exception criteria with the exception of potassium. In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data. 1203559388 (MB)-ICP. The method blanks (MB) analyzed with this SDG met the exception criteria with the exception of thallium. In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data. 1203559436 (MB)-ICP-MS.

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: GEL398441 GEL Work Order: 398441

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.

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.

Review/Validation

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

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

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

Date: 27 JUN 2016 **Title: Data Validator**

Sample Data Summary

GEL Laboratories LLC

METALS
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INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL398441 **CONTRACT:** CPRC0X16033 **METHOD TYPE:** SW846

SAMPLE ID: 398441001 **BASIS:** As Received **DATE COLLECTED** 31−MAY−16

CLIENT ID: B358C9 **LEVEL:** Low **DATE RECEIVED** 01−JUN−16

MATRIX: WATER **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	69.1	ug/L		15	50	50	1	MS	BAJ	06/08/16 17:08	160608−4	1571456
7440−36−0	Antimony	1	ug/L	U	1	3	3	1	MS	BAJ	06/08/16 15:38	160608−3	1571456
7440−38−2	Arsenic	1.7	ug/L	U	1.7	5	5	1	MS	BAJ	06/08/16 13:12	160608−2	1571456
7440−39−3	Barium	25.8	ug/L		0.6	2	2	1	MS	BAJ	06/08/16 13:12	160608−2	1571456
7440−41−7	Beryllium	0.20	ug/L	U	0.2	0.5	0.5	1	MS	BAJ	06/08/16 13:12	160608−2	1571456
7440−42−8	Boron	17.3	ug/L	B	15	50	50	1	P	LS	06/03/16 11:03	060316−1	1571435
7440−43−9	Cadmium	0.110	ug/L	U	0.11	1	1	1	MS	BAJ	06/08/16 13:12	160608−2	1571456
7440−70−2	Calcium	33200	ug/L		50	200	200	1	P	LS	06/03/16 11:03	060316−1	1571435
7440−47−3	Chromium	3.06	ug/L	B	2	10	10	1	MS	BAJ	06/08/16 13:12	160608−2	1571456
7440−48−4	Cobalt	0.10	ug/L	U	0.1	1	1	1	MS	BAJ	06/08/16 13:12	160608−2	1571456
7440−50−8	Copper	0.817	ug/L	B	0.35	1	1	1	MS	SKJ	06/14/16 12:49	160614−5	1573396
7439−89−6	Iron	158	ug/L		30	100	100	1	P	LS	06/03/16 11:03	060316−1	1571435
7439−92−1	Lead	0.50	ug/L	U	0.5	2	2	1	MS	BAJ	06/08/16 13:12	160608−2	1571456
7439−95−4	Magnesium	6220	ug/L		110	300	300	1	P	LS	06/03/16 11:03	060316−1	1571435
7439−96−5	Manganese	4.79	ug/L	B	1	5	5	1	MS	BAJ	06/08/16 13:12	160608−2	1571456
7439−98−7	Molybdenum	0.850	ug/L		0.165	0.5	0.5	1	MS	BAJ	06/08/16 17:08	160608−4	1571456
7440−02−0	Nickel	0.50	ug/L	U	0.5	2	2	1	MS	BAJ	06/08/16 13:12	160608−2	1571456
7440−09−7	Potassium	2990	ug/L		50	150	150	1	P	LS	06/03/16 11:03	060316−1	1571435
7782−49−2	Selenium	1.5	ug/L	U	1.5	5	5	1	MS	BAJ	06/08/16 13:12	160608−2	1571456
7440−22−4	Silver	0.20	ug/L	U	0.2	1	1	1	MS	BAJ	06/08/16 13:12	160608−2	1571456
7440−23−5	Sodium	31000	ug/L		100	300	300	1	P	LS	06/03/16 11:03	060316−1	1571435
7440−24−6	Strontium	143	ug/L		2	10	10	1	MS	BAJ	06/08/16 13:12	160608−2	1571456
7440−28−0	Thallium	0.450	ug/L	U	0.45	2	2	1	MS	BAJ	06/08/16 17:08	160608−4	1571456
7440−29−1	Thorium	0.407	ug/L	B	0.383	2	2	1	MS	BAJ	06/08/16 17:08	160608−4	1571456
7440−31−5	Tin	1	ug/L	U	1	5	5	1	MS	BAJ	06/08/16 17:08	160608−4	1571456
7440−61−1	Uranium	0.886	ug/L		0.067	0.2	0.2	1	MS	BAJ	06/08/16 17:08	160608−4	1571456
7440−62−2	Vanadium	3.02	ug/L	B	1	5	5	1	P	LS	06/03/16 11:03	060316−1	1571435
7440−66−6	Zinc	3.5	ug/L	U	3.5	10	10	1	MS	BAJ	06/08/16 13:12	160608−2	1571456

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1571435	1571434	SW846 3005A	50	mL	50	mL	06/02/16	SXW1
1571456	1571455	SW846 3005A	50	mL	50	mL	06/02/16	SXW1
1573396	1573394	SW846 3005A	25	mL	25	mL	06/13/16	JP1

METALS
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INORGANICS ANALYSIS DATA PACKAGE

***Analytical Methods:**

P	**SW846 3005A/6010C**
MS	**SW846 3005A/6020A**

GEL Laboratories LLC

METALS
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INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL398441 **CONTRACT:** CPRC0X16033 **METHOD TYPE:** SW846

SAMPLE ID: 398441002 **BASIS:** As Received **DATE COLLECTED** 31−MAY−16

CLIENT ID: B358D1 **LEVEL:** Low **DATE RECEIVED** 01−JUN−16

MATRIX: WATER **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	15	ug/L	U	15	50	50	1	MS	BAJ	06/08/16 17:14	160608−4	1571456
7440−36−0	Antimony	1	ug/L	U	1	3	3	1	MS	BAJ	06/08/16 15:43	160608−3	1571456
7440−38−2	Arsenic	1.7	ug/L	U	1.7	5	5	1	MS	BAJ	06/08/16 13:25	160608−2	1571456
7440−39−3	Barium	25.4	ug/L		0.6	2	2	1	MS	BAJ	06/08/16 13:25	160608−2	1571456
7440−41−7	Beryllium	0.20	ug/L	U	0.2	0.5	0.5	1	MS	BAJ	06/08/16 13:25	160608−2	1571456
7440−42−8	Boron	17.4	ug/L	B	15	50	50	1	P	LS	06/03/16 11:17	060316−1	1571435
7440−43−9	Cadmium	0.110	ug/L	U	0.11	1	1	1	MS	BAJ	06/08/16 13:25	160608−2	1571456
7440−70−2	Calcium	31200	ug/L		50	200	200	1	P	LS	06/03/16 11:17	060316−1	1571435
7440−47−3	Chromium	3.18	ug/L	B	2	10	10	1	MS	BAJ	06/08/16 13:25	160608−2	1571456
7440−48−4	Cobalt	0.416	ug/L	B	0.1	1	1	1	MS	BAJ	06/08/16 13:25	160608−2	1571456
7440−50−8	Copper	0.774	ug/L	B	0.35	1	1	1	MS	SKJ	06/14/16 12:59	160614−5	1573396
7439−89−6	Iron	99.2	ug/L	B	30	100	100	1	P	LS	06/03/16 11:17	060316−1	1571435
7439−92−1	Lead	0.50	ug/L	U	0.5	2	2	1	MS	BAJ	06/08/16 13:25	160608−2	1571456
7439−95−4	Magnesium	6050	ug/L		110	300	300	1	P	LS	06/03/16 11:17	060316−1	1571435
7439−96−5	Manganese	3.76	ug/L	B	1	5	5	1	MS	BAJ	06/08/16 13:25	160608−2	1571456
7439−98−7	Molybdenum	0.881	ug/L		0.165	0.5	0.5	1	MS	BAJ	06/08/16 17:14	160608−4	1571456
7440−02−0	Nickel	0.50	ug/L	U	0.5	2	2	1	MS	BAJ	06/08/16 13:25	160608−2	1571456
7440−09−7	Potassium	3000	ug/L		50	150	150	1	P	LS	06/03/16 11:17	060316−1	1571435
7782−49−2	Selenium	1.5	ug/L	U	1.5	5	5	1	MS	BAJ	06/08/16 13:25	160608−2	1571456
7440−22−4	Silver	0.20	ug/L	U	0.2	1	1	1	MS	BAJ	06/08/16 13:25	160608−2	1571456
7440−23−5	Sodium	30600	ug/L		100	300	300	1	P	LS	06/03/16 11:17	060316−1	1571435
7440−24−6	Strontium	149	ug/L		2	10	10	1	MS	BAJ	06/08/16 13:25	160608−2	1571456
7440−28−0	Thallium	0.450	ug/L	U	0.45	2	2	1	MS	BAJ	06/08/16 17:14	160608−4	1571456
7440−29−1	Thorium	0.730	ug/L	B	0.383	2	2	1	MS	BAJ	06/08/16 17:14	160608−4	1571456
7440−31−5	Tin	1	ug/L	U	1	5	5	1	MS	BAJ	06/08/16 17:14	160608−4	1571456
7440−61−1	Uranium	0.924	ug/L		0.067	0.2	0.2	1	MS	BAJ	06/08/16 17:14	160608−4	1571456
7440−62−2	Vanadium	2.95	ug/L	B	1	5	5	1	P	LS	06/03/16 11:17	060316−1	1571435
7440−66−6	Zinc	3.5	ug/L	U	3.5	10	10	1	MS	BAJ	06/08/16 13:25	160608−2	1571456

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1571435	1571434	SW846 3005A	50	mL	50	mL	06/02/16	SXW1
1571456	1571455	SW846 3005A	50	mL	50	mL	06/02/16	SXW1
1573396	1573394	SW846 3005A	25	mL	25	mL	06/13/16	JP1

METALS
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INORGANICS ANALYSIS DATA PACKAGE

***Analytical Methods:**

P	**SW846 3005A/6010C**
MS	**SW846 3005A/6020A**

Quality Control Summary

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

QC Summary

Report Date: June 27, 2016

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

Contact: Mr. Scot Fitzgerald

Workorder: 398441

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch 1571456											
QC1203559437 LCS											
Aluminum	2000			1990	ug/L		99.4	(80%-120%)	BAJ	06/08/16	17:05
Antimony	50.0			60.1	ug/L		120	(80%-120%)		06/08/16	15:35
Arsenic	50.0			52.2	ug/L		104	(80%-120%)		06/08/16	13:06
Barium	50.0			49.3	ug/L		98.6	(80%-120%)			
Beryllium	50.0			59.8	ug/L		120	(80%-120%)			
Cadmium	50.0			49.9	ug/L		99.9	(80%-120%)			
Chromium	50.0			53.4	ug/L		107	(80%-120%)			
Cobalt	50.0			52.8	ug/L		106	(80%-120%)			
Lead	50.0			51.8	ug/L		104	(80%-120%)			
Manganese	50.0			50.9	ug/L		102	(80%-120%)			
Molybdenum	50.0			51.1	ug/L		102	(80%-120%)		06/08/16	17:05
Nickel	50.0			53.6	ug/L		107	(80%-120%)		06/08/16	13:06
Selenium	50.0			52.4	ug/L		105	(80%-120%)			
Silver	50.0			50.9	ug/L		102	(80%-120%)			
Strontium	50.0			48.6	ug/L		97.3	(80%-120%)			
Thallium	50.0			50.7	ug/L		101	(80%-120%)		06/08/16	17:05
Thorium	50.0			48.2	ug/L		96.4	(80%-120%)			
Tin	50.0			52.9	ug/L		106	(80%-120%)			
Uranium	50.0			50.6	ug/L		101	(80%-120%)			
Zinc	50.0			53.5	ug/L		107	(80%-120%)		06/08/16	13:06

GEL LABORATORIES LLC
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QC Summary

Workorder: 398441

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS										
Batch 1571456										
QC1203559436 MB										
Aluminum			U	15.0	ug/L				BAJ	06/08/16 17:03
Antimony			U	1.00	ug/L					06/08/16 15:34
Arsenic			U	1.70	ug/L					06/08/16 13:04
Barium			U	0.600	ug/L					
Beryllium			U	0.200	ug/L					
Cadmium			U	0.110	ug/L					
Chromium			U	2.00	ug/L					
Cobalt			U	0.100	ug/L					
Lead			U	0.500	ug/L					
Manganese			U	1.00	ug/L					
Molybdenum			U	0.165	ug/L					06/08/16 17:03
Nickel			U	0.500	ug/L					06/08/16 13:04
Selenium			U	1.50	ug/L					
Silver			U	0.200	ug/L					
Strontium			U	2.00	ug/L					
Thallium			B	0.542	ug/L					06/08/16 17:03
Thorium			U	0.383	ug/L					
Tin			U	1.00	ug/L					
Uranium			U	0.067	ug/L					
Zinc			U	3.50	ug/L					06/08/16 13:04
QC1203559438 398441001 MS										
Aluminum	2000	69.1		2070	ug/L		100	(75%-125%)		06/08/16 17:09

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QC Summary

Workorder: 398441

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS											
Batch 1571456											
Antimony	50.0	U	1.00		59.6	ug/L		118	(75%-125%)	BAJ	06/08/16 15:39
Arsenic	50.0	U	1.70		53.4	ug/L		104	(75%-125%)		06/08/16 13:14
Barium	50.0		25.8		77.2	ug/L		103	(75%-125%)		
Beryllium	50.0	U	0.200		56.8	ug/L		114	(75%-125%)		
Cadmium	50.0	U	0.110		50.6	ug/L		101	(75%-125%)		
Chromium	50.0	B	3.06		57.3	ug/L		108	(75%-125%)		
Cobalt	50.0	U	0.100		51.1	ug/L		102	(75%-125%)		
Lead	50.0	U	0.500		50.8	ug/L		101	(75%-125%)		
Manganese	50.0	B	4.79		55.2	ug/L		101	(75%-125%)		
Molybdenum	50.0		0.850		53.5	ug/L		105	(75%-125%)		06/08/16 17:09
Nickel	50.0	U	0.500		51.4	ug/L		102	(75%-125%)		06/08/16 13:14
Selenium	50.0	U	1.50		52.2	ug/L		104	(75%-125%)		
Silver	50.0	U	0.200		49.8	ug/L		99.5	(75%-125%)		
Strontium	50.0		143		201	ug/L		115	(75%-125%)		
Thallium	50.0	U	0.450		48.1	ug/L		96	(75%-125%)		06/08/16 17:09
Thorium	50.0	B	0.407		47.7	ug/L		94.7	(75%-125%)		
Tin	50.0	U	1.00		52.9	ug/L		105	(75%-125%)		
Uranium	50.0		0.886		50.9	ug/L		100	(75%-125%)		
Zinc	50.0	U	3.50		54.8	ug/L		104	(75%-125%)		06/08/16 13:14
QC1203559439 398441001 MSD											
Aluminum	2000		69.1		2040	ug/L	1.76	98.4	(0%-20%)		06/08/16 17:11
Antimony	50.0	U	1.00		59.8	ug/L	0.325	119	(0%-20%)		06/08/16 15:40

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

QC Summary

Workorder: 398441

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS											
Batch 1571456											
Arsenic	50.0	U	1.70		52.5	ug/L	1.65	102	(0%-20%)	BAJ	06/08/16 13:17
Barium	50.0		25.8		76.1	ug/L	1.51	100	(0%-20%)		
Beryllium	50.0	U	0.200		55.7	ug/L	1.98	111	(0%-20%)		
Cadmium	50.0	U	0.110		52.4	ug/L	3.48	105	(0%-20%)		
Chromium	50.0	B	3.06		56.5	ug/L	1.35	107	(0%-20%)		
Cobalt	50.0	U	0.100		57.4	ug/L	11.5	115	(0%-20%)		
Lead	50.0	U	0.500		46.3	ug/L	9.33	92.3	(0%-20%)		
Manganese	50.0	B	4.79		58.3	ug/L	5.38	107	(0%-20%)		
Molybdenum	50.0		0.850		52.8	ug/L	1.22	104	(0%-20%)		06/08/16 17:11
Nickel	50.0	U	0.500		53.9	ug/L	4.65	107	(0%-20%)		06/08/16 13:17
Selenium	50.0	U	1.50		50.9	ug/L	2.56	101	(0%-20%)		
Silver	50.0	U	0.200		53.4	ug/L	7.08	107	(0%-20%)		
Strontium	50.0		143		200	ug/L	0.0574	114	(0%-20%)		
Thallium	50.0	U	0.450		47.7	ug/L	0.931	95.1	(0%-20%)		06/08/16 17:11
Thorium	50.0	B	0.407		49.8	ug/L	4.16	98.7	(0%-20%)		
Tin	50.0	U	1.00		52.2	ug/L	1.32	104	(0%-20%)		
Uranium	50.0		0.886		50.7	ug/L	0.525	99.6	(0%-20%)		
Zinc	50.0	U	3.50		49.1	ug/L	10.9	93	(0%-20%)		06/08/16 13:17
QC1203559440 398441001 SDILT											
Aluminum			69.1	DU	75.0	ug/L	N/A		(0%-10%)		06/08/16 17:13
Antimony		U	0.374	DU	5.00	ug/L	N/A		(0%-10%)		06/08/16 15:42
Arsenic		U	1.50	DU	8.50	ug/L	N/A		(0%-10%)		06/08/16 13:22

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

QC Summary

Workorder: 398441

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS										
Batch 1571456										
Barium		25.8	D	5.34	ug/L	3.36		(0%-10%)	BAJ	06/08/16 13:22
Beryllium	U	-0.003	DU	1.00	ug/L	N/A		(0%-10%)		
Cadmium	U	0.015	DU	0.550	ug/L	N/A		(0%-10%)		
Chromium	B	3.06	DU	10.0	ug/L	N/A		(0%-10%)		
Cobalt	U	0.065	DU	0.500	ug/L	N/A		(0%-10%)		
Lead	U	0.139	DU	2.50	ug/L	N/A		(0%-10%)		
Manganese	B	4.79	DU	5.00	ug/L	N/A		(0%-10%)		
Molybdenum		0.850	D	0.284	ug/L	67.1		(0%-10%)		06/08/16 17:13
Nickel	U	0.236	DU	2.50	ug/L	N/A		(0%-10%)		06/08/16 13:22
Selenium	U	0.289	DU	7.50	ug/L	N/A		(0%-10%)		
Silver	U	0.003	DU	1.00	ug/L	N/A		(0%-10%)		
Strontium		143	D	27.6	ug/L	3.73		(0%-10%)		
Thallium	U	0.138	DU	2.25	ug/L	N/A		(0%-10%)		06/08/16 17:13
Thorium	B	0.407	D	1.13	ug/L	1290		(0%-10%)		
Tin	U	0.424	DU	5.00	ug/L	N/A		(0%-10%)		
Uranium		0.886	D	0.200	ug/L	12.9		(0%-10%)		
Zinc	U	2.58	DU	17.5	ug/L	N/A		(0%-10%)		06/08/16 13:22
Batch 1573396										
QC1203564522 LCS										
Copper 50.0				48.9	ug/L		97.8	(80%-120%)	SKJ	06/14/16 12:43
QC1203564521 MB										
Copper			U	0.350	ug/L					06/14/16 12:41
QC1203564523 398441001 MS										
Copper 50.0	B	0.817		49.1	ug/L		96.5	(75%-125%)		06/14/16 12:51

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QC Summary

Workorder: 398441

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS												
Batch 1573396												
QC1203564524 398441001 MSD												
Copper	50.0	B	0.817		48.6	ug/L	1	95.5	(0%-20%)	SKJ	06/14/16	12:53
QC1203564525 398441001 SDILT												
Copper		B	0.817	DU	1.75	ug/L	N/A		(0%-10%)		06/14/16	12:57
Metals Analysis-ICP												
Batch 1571435												
QC1203559389 LCS												
Boron	500				471	ug/L		94.2	(80%-120%)	LS	06/03/16	11:00
Calcium	5000				5040	ug/L		101	(80%-120%)			
Iron	5000				5030	ug/L		101	(80%-120%)			
Magnesium	5000				4890	ug/L		97.8	(80%-120%)			
Potassium	5000				5010	ug/L		100	(80%-120%)			
Sodium	5000				5050	ug/L		101	(80%-120%)			
Vanadium	500				478	ug/L		95.6	(80%-120%)			
QC1203559388 MB												
Boron				U	15.0	ug/L					06/03/16	10:57
Calcium				U	50.0	ug/L						
Iron				U	30.0	ug/L						
Magnesium				U	110	ug/L						
Potassium				B	111	ug/L						
Sodium				U	100	ug/L						
Vanadium				U	1.00	ug/L						
QC1203559390 398441001 MS												
Boron	500	B	17.3		502	ug/L		97	(75%-125%)		06/03/16	11:06
Calcium	5000		33200		37600	ug/L		N/A	(75%-125%)			

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QC Summary

Workorder: 398441

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP											
Batch 1571435											
Iron	5000		158		5260	ug/L		102	(75%-125%)		
Magnesium	5000		6220		11200	ug/L		99.5	(75%-125%)	LS	06/03/16 11:06
Potassium	5000		2990		8180	ug/L		104	(75%-125%)		
Sodium	5000		31000		35900	ug/L		N/A	(75%-125%)		
Vanadium	500	B	3.02		482	ug/L		95.8	(75%-125%)		
QC1203559391 398441001 MSD											
Boron	500	B	17.3		492	ug/L	1.92	95	(0%-20%)		06/03/16 11:09
Calcium	5000		33200		36900	ug/L	1.89	N/A	(0%-20%)		
Iron	5000		158		5190	ug/L	1.19	101	(0%-20%)		
Magnesium	5000		6220		11000	ug/L	2.12	94.8	(0%-20%)		
Potassium	5000		2990		7990	ug/L	2.3	100	(0%-20%)		
Sodium	5000		31000		35100	ug/L	2.24	N/A	(0%-20%)		
Vanadium	500	B	3.02		490	ug/L	1.6	97.4	(0%-20%)		
QC1203559392 398441001 SDILT											
Boron		B	17.3	DU	75.0	ug/L	N/A		(0%-10%)		06/03/16 11:12
Calcium			33200	D	6830	ug/L	2.89		(0%-10%)		
Iron			158	D	37.7	ug/L	18.9		(0%-10%)		
Magnesium			6220	D	1300	ug/L	4.67		(0%-10%)		
Potassium			2990	D	601	ug/L	.429		(0%-10%)		
Sodium			31000	D	6300	ug/L	1.53		(0%-10%)		
Vanadium		B	3.02	DU	5.00	ug/L	N/A		(0%-10%)		

Notes:

The Qualifiers in this report are defined as follows:

* Duplicate analysis not within control limits

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QC Summary

Workorder: 398441

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

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

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

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

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL398441
Work Order #: 398441

Product: **Carbon, Total Organic**
Analytical Method: SW846 9060A
Analytical Procedure: GL-GC-E-093 REV# 14
Analytical Batch: 1572395

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

GEL Sample ID#	Client Sample Identification
398441001	B358C9
1203561742	Method Blank (MB)
1203561743	Laboratory Control Sample (LCS)
1203561745	398421002(NonSDG) Sample Duplicate (DUP)
1203561746	398441001(B358C9) Sample Duplicate (DUP)
1203561748	398421002(NonSDG) Post Spike (PS)
1203561749	398441001(B358C9) Post Spike (PS)

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
The following samples 1203561745 (Non SDG 398421002DUP) and 1203561748 (Non SDG 398421002PS) were diluted because target analyte concentrations exceeded the calibration range. The following samples were originally diluted at 500X due to the matrix of the sample. The samples were re-analyzed at 20X ,the lowest dilution possible in order to bring the samples results within the required reporting limits,however the final results were less then the PQL which maybe due to matrix interference. The data is being reported. 1203561745 (Non SDG 398421002DUP) and 1203561748 (Non SDG 398421002PS).

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: GEL398441 GEL Work Order: 398441

The Qualifiers in this report are defined as follows:

B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).

D Results are reported from a diluted aliquot of sample.

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

Review/Validation

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

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

Signature:  **Name: Aubrey Kingsbury**

Date: 15 JUN 2016 **Title: Analyst I**

Sample Data Summary

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

Certificate of Analysis

Report Date: June 15, 2016

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF X16-033

Client Sample ID: B358C9
Sample ID: 398441001
Matrix: WATER
Collect Date: 31-MAY-16 11:11
Receive Date: 01-JUN-16
Collector: Client

Project: CPRC0X16033
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
9060_TOC: COMMON "As Received"											
Total Organic Carbon #1		1380	330	1000	ug/L	1	TSM	06/06/16	1932	1572395	1
Total Organic Carbon #2		1400	330	1000	ug/L	1					
Total Organic Carbon #3		1400	330	1000	ug/L	1					
Total Organic Carbon #4		1410	330	1000	ug/L	1					
Total Organic Carbon Average		1400	330	1000	ug/L	1					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060A	

Notes:

Quality Control Summary

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

QC Summary

Report Date: June 15, 2016

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **398441**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis										
Batch 1572395										
QC1203561745 398421002 DUP										
Total Organic Carbon Average	BD	17400	BD	17000	ug/L	2.56		(0%-20%)	TSM	06/07/16 15:23
QC1203561746 398441001 DUP										
Total Organic Carbon Average		1400		1400	ug/L	0 ^		(+/-1000)		06/06/16 20:13
QC1203561743 LCS										
Total Organic Carbon Average	10000			10900	ug/L		109	(80%-120%)		06/06/16 15:40
QC1203561742 MB										
Total Organic Carbon Average			U	330	ug/L					06/06/16 15:30
QC1203561748 398421002 PS										
Total Organic Carbon Average	10.0 BD	0.872	D	11.4	mg/L		105	(75%-125%)		06/07/16 16:07
QC1203561749 398441001 PS										
Total Organic Carbon Average	10.0	1.40		12.5	mg/L		111	(75%-125%)		06/06/16 20:54

Notes:

The Qualifiers in this report are defined as follows:

- < Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide
- > Result greater than quantifiable range or greater than upper limit of the analysis range
- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- C Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.
- D Results are reported from a diluted aliquot of sample.
- N Spike Sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

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

QC Summary

Workorder: 398441

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

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

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

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL398441
Work Order #: 398441

Product: **SRISO_SEP_PRECIP_GPC: COMMON**
Analytical Method: SRISO_SEP_PRECIP_GPC
Analytical Procedure: GL-RAD-A-004 REV# 17
Analytical Batch: 1574054

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

GEL Sample ID#	Client Sample Identification
398441001	B358C9
1203566155	Method Blank (MB)
1203566156	398676005(NonSDG) Sample Duplicate (DUP)
1203566157	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.

Quality Control (QC) Information

QC Information
All of the QC samples meet the required acceptance limits with the following exceptions: The sample and duplicate, 1203566156 (Non SDG 398676005DUP), do not meet the client relative error ratio requirement; however, both sample and duplicate results are less than the minimum detectable activity.

Technical Information

Recounts
Sample 1203566157 (LCS) was recounted due to high recovery. The recount is reported. Sample 1203566155 (MB) was recounted due to a suspected blank false positive. The recount is reported. Sample 398441001 (B358C9) was verified by recounting at least five days from the separation date. The recount is reported.

Product: **9310_ALPHABETA_GPC: COMMON**
Analytical Method: 9310_ALPHABETA_GPC
Analytical Procedure: GL-RAD-A-001 REV# 18
Analytical Batch: 1574059

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

GEL Sample ID#	Client Sample Identification
398441001	B358C9
1203566170	Method Blank (MB)
1203566171	398744003(B358P0) Sample Duplicate (DUP)
1203566172	398744003(B358P0) Matrix Spike (MS)
1203566173	398744003(B358P0) Matrix Spike Duplicate (MSD)
1203566174	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.

Miscellaneous Information

Additional Comments
The matrix spike and matrix spike duplicate, 1203566172 (B358P0MS) and 1203566173 (B358P0MSD), aliquots were reduced to conserve sample volume.

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: GEL398441 GEL Work Order: 398441

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: Theresa Austin**

Date: 27 JUN 2016 **Title: Group Leader**

Sample Data Summary

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL398441**	**Client:**	**CPRC001**	**Project:**	**CPRC0X16033**
Lab Sample ID:	**398441001**	**Date Collected:**	**05/31/2016 11:11**	**Matrix:**	**WATER**
		Date Received:	**06/01/2016 09:05**		
Client ID:	**B358C9**			**Prep Basis:**	**"As Received"**
Batch ID:	**1574054**	**Method:**	**SRISO_SEP_PRECIP_GPC**	**SOP Ref:**	**GL-RAD-A-004**
Run Date:	**06/27/2016 08:52**	**Analyst:**	**KSD1**	**Instrument:**	**PIC2D**
Data File:	**S1574054r3.xls**	**Aliquot:**	**300 mL**	**Count Time:**	**60 min**
Prep Batch:	**1574054**	**Prep Method:**	**EPA 905.0 Modified/DOE RP5**		
Prep Date:	**06/21/2016 00:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90		8.73	pCi/L	+/-1.39	1.95	1.43	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	6.30	7.37	mg	85.5	(40%-110%)

Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL398441**	**Client:**	**CPRC001**	**Project:**	**CPRC0X16033**
Lab Sample ID:	**398441001**	**Date Collected:**	**05/31/2016 11:11**	**Matrix:**	**WATER**
		Date Received:	**06/01/2016 09:05**		
Client ID:	**B358C9**			**Prep Basis:**	**"As Received"**
Batch ID:	**1574059**	**Method:**	**9310_ALPHABETA_GPC**	**SOP Ref:**	**GL-RAD-A-001**
Run Date:	**06/20/2016 15:44**	**Analyst:**	**JXC9**	**Instrument:**	**LB4100I1**
Data File:	**AB1574059.xls**	**Aliquot:**	**150 mL**	**Count Time:**	**170 min**
Prep Batch:	**1574059**	**Prep Method:**	**EPA 900.0/SW846 9310**		
Prep Date:	**06/17/2016 12:47**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
12587-46-1	Alpha *ALPHA*	U	0.936	pCi/L	+/-1.70	1.70	2.99	3.00
12587-47-2	Beta *BETA*		19.5	pCi/L	+/-2.21	3.86	2.25	4.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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

The MDC is a sample specific MDC.

Quality Control Summary

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

QC Summary

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

Workorder: 398441

Report Date: June 27, 2016

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gas Flow									
Batch 1574054									
QC1203566155 MB									
Strontium-90			U	-1.33	pCi/L			KSD1	06/22/1616:30
Uncert:				+/-0.649					
TPU:				+/-0.649					
**Strontium Carrier	7.37			6.40	mg	REC: 87	(40%-110%)		
QC1203566156 398676005 DUP									
Strontium-90	U	-0.749	U	0.723	pCi/L				06/22/1614:32
Uncert:		+/-0.670		+/-1.02		RPD: 0	N/A		
TPU:		+/-0.670		+/-1.03		RER: 2.35	(0-2)		
**Strontium Carrier	7.37	5.70		5.80	mg	REC: 79	(40%-110%)		
QC1203566157 LCS									
Strontium-90	73.0			84.5	pCi/L	REC: 116	(80%-120%)		06/24/1610:55
Uncert:				+/-4.07					
TPU:				+/-13.9					
**Strontium Carrier	7.37			5.70	mg	REC: 77	(40%-110%)		
Batch 1574059									
QC1203566170 MB									
Alpha			U	-1.31	pCi/L			JXC9	06/20/1616:26
Uncert:				+/-0.321					
TPU:				+/-0.322					
Beta			U	-0.21	pCi/L				
Uncert:				+/-1.05					
TPU:				+/-1.05					
QC1203566171 398744003 DUP									
Alpha	U	0.0146	U	-0.651	pCi/L				06/20/1616:30
Uncert:		+/-1.41		+/-0.981		RPD: 0	N/A		
TPU:		+/-1.41		+/-0.982		RER: 0.759	(0-2)		
Beta		517		463	pCi/L				
Uncert:		+/-15.6		+/-14.3		RPD: 11	(0% - 20%)		
TPU:		+/-86.2		+/-76.6		RER: 0.919	(0-2)		
QC1203566172 398744003 MS									
Alpha	240 U	0.0146		252	pCi/L	REC: 105	(75%-125%)		06/20/1611:31
Uncert:		+/-1.41		+/-24.8					
TPU:		+/-1.41		+/-48.9					
Beta	876	517		1590	pCi/L	REC: 122	(75%-125%)		
Uncert:		+/-15.6		+/-45.9					
TPU:		+/-86.2		+/-269					
QC1203566173 398744003 MSD									
Alpha	240 U	0.0146		238	pCi/L	REC: 99	(75%-125%)		06/20/1611:31
Uncert:		+/-1.41		+/-26.8		RPD: 6	(0%-20%)		
TPU:		+/-1.41		+/-49.2		RER: 0.41	(0-2)		
Beta	876	517		1530	pCi/L	REC: 115	(75%-125%)		
Uncert:		+/-15.6		+/-45.0		RPD: 4	(0%-20%)		
TPU:		+/-86.2		+/-257		RER: 0.311	(0-2)		
QC1203566174 LCS									

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QC Summary

Workorder: 398441

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date	Time
Rad Gas Flow										
Batch 1574059										
Alpha	79.9			70.0	pCi/L	REC: 88	(80%-120%)			
	Uncert:			+/-7.20						
	TPU:			+/-13.5						
Beta	292			340	pCi/L	REC: 116	(80%-120%)			
	Uncert:			+/-12.3						
	TPU:			+/-57.9						

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
<	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide
>	Result greater than quantifiable range or greater than upper limit of the analysis range
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.
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)

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QC Summary

Workorder: **398441**

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

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
** Indicates analyte is a surrogate compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

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