GEL Laboratories LLC
a member of The GEL Group INC

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

July 20, 2017

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

Re: CHPRC SAF I17-008
Work Order: 426165
SDG: GEL426165

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 23, 2017. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

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

Sincerely,

B Luthman

Brielle Luthman for
Heather Shaffer
Project Manager

Purchase Order: 300071 - 7H
Chain of Custody: I17-008-111, I17-008-130, I17-008-136, I17-008-138, I17-008-139, I17-008-141, I17-008-213, I17-008-215, I17-008-219, I17-008-225, I17-008-232, I17-008-234, I17-008-243, I17-008-244, I17-008-251, I17-008-253 and I17-008-271
Enclosures

Table of Contents

Sample Issue Resolution

SAMPLE ISSUE RESOLUTION

SIR NUM	SIR17-771
REV NUM	0
DATE INITIATED	6/26/2017

SAMPLE EVENT INFORMATION

SAF NUM(S)	I17-008
OPERABLE UNIT(S)	100-NR-2
PROJECT(S)	CERC17
SAMPLE EVENT TITLE(S)	CERC17
LABORATORY	GEL Laboratories, LLC

SAMPLING INFORMATION

NUMBER OF SAMPLES	1
SAMPLE NUMBERS	B39M49
SAMPLE MATRIX	WATER
COLLECTION DATE	-
SDG NUM	GEL426165

ISSUE BACKGROUND

CLASS	Field Sampling Issue
TYPE	Broken Sample Bottle
DESCRIPTION	One container for B39M49, WTPH_DIESEL, was received broken.

DISPOSITION

DESCRIPTION	The lab has sufficient volume to proceed with analysis.
JUSTIFICATION	Final Disposition: Proceed with analyses.

SUBMITTED BY: Heather Shaffer DATE: 06/23/2017
ACCEPTED BY: Sarah Nagel DATE: 06/26/2017

Case Narrative

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF I17-008
SDG: GEL426165

July 20, 2017

Laboratory Identification:

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

Summary

Sample receipt

The sample(s) arrived at GEL Laboratories, LLC, Charleston, South Carolina on June 23, 2017, for analysis. The samples were delivered with proper chain of custody documentation and signatures. Please see the enclosed SIR for further details on receipt issues.. 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
426165001	B39M50
426165002	B39M56
426165003	B39M60
426165004	B39M66
426165005	B39N08
426165006	B39N13
426165007	B39N25
426165008	B39N43
426165009	B39N63
426165010	B39N68
426165011	B39N95
426165012	B39N99
426165013	B39M59
426165014	B39M61
426165015	B39NB0
426165016	B39N98
426165017	B39M49
426165018	B39M65
426165019	B39N42

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.

B Luthman

Brielle Luthman for
Heather Shaffer
Project Manager

Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL426165
Work Order #: 426165

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.

Calibration Information

Initial Calibration
The Kerosene ICV recovered high. The ICV standard may have concentrated. Kerosene was not detected in the associated samples.

Continuing Calibration Verification (CCV) Requirements
Not all calibration verification standards (ICV or CCV) requirements have been met for this SDG. Several target analytes failed with a positive bias in the standards bracketing the samples in this SDG. The target analytes were not detected above the PQL in the associated samples; therefore, the non-compliance has no adverse effects on the data.

Miscellaneous Information

Manual Integrations
Samples 1203820656 (LCS), 1203820657 (B39M59MS) and 1203820658 (B39M59MSD) 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. 426165013 (B39M59), 426165014 (B39M61), 426165015 (B39NB0) and 426165016 (B39N98).

General Chemistry

Ion Chromatography

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

Miscellaneous Information

Manual Integrations
Samples 1203818075 (B39N13DUP), 426165002 (B39M56) and 426165006 (B39N13) were manually integrated to correctly position the baseline as set in the calibration standards.

Ion Chromatography

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

Miscellaneous Information

Manual Integrations
Sample 426165011 (B39N95) were manually integrated to correctly position the baseline as set in the calibration standards.

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.

Technical Information

Recounts
Sample 1203822633 (LCS) was recounted due to high recovery. The recount is reported. Samples 1203822632 (B39M59DUP), 426165013 (B39M59) and 426165016 (B39N98) were verified by recounting at least five days from the separation date. The recounts are 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.

Quality Control (QC) Information

QC Information

The matrix spike and matrix spike duplicate, 1203825676 (B39N83MS) and 1203825677 (B39N83MSD), did not meet the alpha relative percent difference requirement; however, they do meet the relative error ratio and spike recovery requirements.

Technical Information

Sample Re-prep/Re-analysis

Samples 426165013 (B39M59) and 426165016 (B39N98) were reprepped due to low recovery. The re-analysis is being reported.

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 1203825676 (B39N83MS) and 1203825677 (B39N83MSD) were recounted due to high recovery. The recounts are reported. Sample 1203825675 (B39N83DUP) was recounted due to high relative percent difference/relative error ratio. The recount is reported.

Miscellaneous Information

Additional Comments

The matrix spike and matrix spike duplicate, 1203825676 (B39N83MS) and 1203825677 (B39N83MSD), 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

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 426165	C.O.C. # I17-008-136 Page 1 of 1

Collector	Roger Friesz Jr. /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	I17-008	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	300071
Project Title	100-NR-2 GW-OU Monitoring Apatite B	**Logbook No.**	HNF-N-506 93 / 56	**Ice Chest No.**	GWS-590
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7794 7326 7488
Protocol	CERCLA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	8078

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
B39M50	N	W	JUN 2 2 2017	1152	1x125-mL G/P	9056_ANIONS_IC: COMMON	48 Hours	Cool <=6C

July 20, 2017

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Roger Friesz Jr. /CHPRC	JUN 2 2 2017 1210	Janelle Zunker CHPRC	JUN 2 2 2017 1210
Janelle Zunker CHPRC	JUN 2 2 2017 1400	FEDEX	
		M. Kinslow	6-23-17 0920

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

PRINTED ON 5/4/2017 FSR ID = FSR44982 A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 426165	C.O.C. # I17-008-138 Page 1 of 1

Collector	Roger Friesz Jr. /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	I17-008	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	300071
Project Title	100-NR-2 GW-OU Monitoring Apatite B	**Logbook No.**	HNF-N-506 93 / 56	**Ice Chest No.**	GWS-590
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7794 7326 7428
Protocol	CERCLA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	8078

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
B39M56	N	W	JUN 2 2 2017	0956	1x125-mL G/P	9056_ANIONS_IC: COMMON	48 Hours	Cool <=6C

July 20, 2017

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Roger Friesz Jr. /CHPRC		JUN 2 2 2017 1035		Janelle Zunker CHPRC		JUN 2 2 2017 1035
Relinquished By	Janelle Zunker CHPRC		JUN 2 2 2017 1400	Received By	FEDEX		Date/Time
Relinquished By			Date/Time	Received By	M. Kinslow		6-23-17 0920
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		

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

PRINTED ON 5/4/2017 FSR ID = FSR43939 A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company

54 lbs

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

4 2 6 1 6 5

C.O.C. # I17-008-139

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Collector	Roger Friesz Jr. /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	I17-008	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	300071
Project Title	100-NR-2 GW-OU Monitoring Apatite B	**Logbook No.**	HNF-N-506 93 / 56	**Ice Chest No.**	GWS-600
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7794 7326 7450
Protocol	CERCLA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	8078

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
B39M60	N	W	JUN 2 2 2017	1100	1x125-mL G/P	9056_ANIONS_IC: COMMON	48 Hours	Cool <=6C

July 20, 2017

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Roger Friesz Jr. /CHPRC		JUN 2 2 2017 1210		Curt Hoffman CHPRC		JUN 2 2 2017 1210
Relinquished By	Curt Hoffman CHPRC		JUN 2 2 2017 1400	Received By	FEDEX		Date/Time
Relinquished By			Date/Time	Received By			6-23-17 9:20
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		

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

PRINTED ON 5/4/2017 FSR ID = FSR44984 A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 426165	C.O.C. # I17-008-141 Page 1 of 1

Collector	Roger Friesz Jr. /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	I17-008	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	300071
Project Title	100-NR-2 GW-OU Monitoring Apatite B	**Logbook No.**	HNF-N-506 93 / 56	**Ice Chest No.**	GWS-590
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7794 3326 7488
Protocol	CERCLA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	8078

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
B39M66	N	W	JUN 2 2 2017	0850	1x125-mL G/P	9056_ANIONS_IC: COMMON	48 Hours	Cool <=6C

July 20, 2017

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Roger Friesz Jr. /CHPRC		JUN 2 2 2017 1035		Janelle Zunker CHPRC		JUN 2 2 2017 1035
Relinquished By	Janelle Zunker CHPRC		JUN 2 2 2017 1400	Received By	FEDEX		Date/Time
Relinquished By			Date/Time	Received By			Date/Time
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

PRINTED ON 5/4/2017 FSR ID = FSR44705 A-6004-842 (REV 2)

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 4261165	C.O.C. # I17-008-213 Page 1 of 1

Collector	Juan Aguilar /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	I17-008	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	303064
Project Title	100-NR-2 GW-OU Monitoring Apatite B	**Logbook No.**	HNF-N-506 84 / 22	**Ice Chest No.**	GWS-590
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7794 7324 7426
Protocol	CERCLA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	8078

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
B39N08	N	W	6-22-17	0901	1x125-mL G/P	9056_ANIONS_IC: COMMON	48 Hours	Cool <=6C

July 20, 2017

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Juan Aguilar /CHPRC		JUN 22 2017	1030	Janelle Zunker CHPRC		JUN 22 2017	1030
Janelle Zunker CHPRC		JUN 22 2017	1400	Received By	FEDEX		Date/Time
Relinquished By			Date/Time	Received By			Date/Time
		Fx		M Kinslow		6-23-17	0920
Relinquished By			Date/Time	Received By			Date/Time

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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

PRINTED ON 4/26/2017 **FSR ID = FSR44617** A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company

91186

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

426165

C.O.C. # I17-008-215

Page 1 of 1

Collector	Juan Aguilar /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	I17-008	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	303064
Project Title	100-NR-2 GW-OU Monitoring Apatite B	**Logbook No.**	HNF-N-506 84/23	**Ice Chest No.**	GWS-590
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7794 7326 7428
Protocol	CERCLA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	8078

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**

N/A

Total Activity Exemption: Yes ☑ No ☐

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39N13	N	W	6-22-17	1200	1x125-mL G/P	9056_ANIONS_IC: COMMON	48 Hours	Cool <=6C

July 20, 2017

Relinquished By Print: Juan Aguilar /CHPRC	Sign	Date/Time: JUN 22 2017 1205	Received By Print: Janelle Zunker CHPRC Sign: JUN 22 2017 Date/Time: 1205
Relinquished By Print: Janelle Zunker CHPRC	Sign	Date/Time: JUN 22 2017 1400	Received By: FEDEX Date/Time: 9760225537 JUN 23 2017
Relinquished By		Date/Time:	Received By: M Kuntow Date/Time: 6-23-17 0920
Relinquished By		Date/Time:	Received By	Date/Time

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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

PRINTED ON 4/26/2017 FSR ID = FSR44530 A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 4261165	C.O.C. # I17-008-219 Page 1 of 1

Collector	Juan Aguilar /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	I17-008	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	303064
Project Title	100-NR-2 GW-OU Monitoring Apatite B	**Logbook No.**	HNF-N-506 84 / 22	**Ice Chest No.**	GWS-590
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7794 7326 7426 8078
Protocol	CERCLA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	

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
B39N25	N	W	6-22-17	0921	1x125-mL G/P	9056_ANIONS_IC: COMMON	48 Hours	Cool <=6C

July 20, 2017

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Juan Aguilar /CHPRC		JUN 22 2017	1030	Janelle Zunker CHPRC		JUN 22 2017	1030
Janelle Zunker CHPRC		JUN 22 2017	1400	Received By	FEDEX		Date/Time
Relinquished By			Date/Time	Received By		6-23-17	0920
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

PRINTED ON 4/26/2017 **FSR ID = FSR34271** A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 426165	C.O.C. # I17-008-225 Page 1 of 1

Collector	Juan Aguilar /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	I17-008	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	303064
Project Title	100-NR-2 GW-OU Monitoring Apatite B	**Logbook No.**	HNF-N-506 84 / 22	**Ice Chest No.**	GWS-590
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7794 7326 7428
Protocol	CERCLA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	8078

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
B39N43	N	W	6-22-17	1047	1x125-mL G/P	9056_ANIONS_IC: COMMON	48 Hours	Cool <=6C

July 20, 2017

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Juan Aguilar /CHPRC			JUN 22 2017 1200	Janelle Zunker CHPRC			JUN 22 2017 1200
Janelle Zunker CHPRC			JUN 22 2017 1400	FEDEX			
		FX		M Kinslow			6-23-17 0920

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

PRINTED ON 4/26/2017 **FSR ID = FSR34740** A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 426165	C.O.C. # I17-008-232 Page 1 of 1

Collector	Juan Aguilar /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	I17-008	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	303064
Project Title	100-NR-2 GW-OU Monitoring Apatite B	**Logbook No.**	HNF-N-506 84/22	**Ice Chest No.**	GWS590
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7794 B26 7426
Protocol	CERCLA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	8078

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
B39N63	N	W	6-22-17	0954	1x125-mL G/P	9056_ANIONS_IC: COMMON	48 Hours	Cool <=6C

July 20, 2017

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Juan Aguilar /CHPRC	JUN 22 2017	1030		Janelle Zunker CHPRC	JUN 22 2017	1030
Relinquished By	Janelle Zunker CHPRC		JUN 22 2017 1400	Received By	FEDEX		Date/Time
Relinquished By			Date/Time	Received By	M Krstow	6-23-17	0920
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

PRINTED ON 4/26/2017 FSR ID = FSR3855 A-6004-842 (REV 2)

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 426165	C.O.C. # I17-008-234 Page 1 of 1

Collector	Juan Aguilar /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	I17-008	**Sampling Origin**	Hanford Site ca 6-22-17	**Purchase Order/Charge Code**	303064
Project Title	100-NR-2 GW-OU Monitoring Apatite B	**Logbook No.**	HNF-N-506 84 /8222	**Ice Chest No.**	GWS-590
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7794 7324 7428
Protocol	CERCLA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	8078

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
B39N68	N	W	6-22-17	0819	1x125-mL G/P	9056_ANIONS_IC: COMMON	48 Hours	Cool <=6C

July 20, 2017

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Juan Aguilar /CHPRC			JUN 22 2017 1030	Janelle Zunker CHPRC			JUN 22 2017 1030
Relinquished By	Janelle Zunker CHPRC		JUN 22 2017 1400	Received By		FEDEX	Date/Time
Relinquished By		FX	Date/Time	Received By			6-23-17 09
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

PRINTED ON 4/26/2017 **FSR ID = FSR31451** A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 4261165	C.O.C. # I17-008-243 Page 1 of 1

Collector	Juan Aguilar /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	I17-008	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	303064
Project Title	100-NR-2 GW-OU Monitoring Apatite B	**Logbook No.**	HNF-N-506 84/22	**Ice Chest No.**	GWS-590
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7794 7326 7428 8078
Protocol	CERCLA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	

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
B39N95	N	W	6-22-17	1135	1x125-mL G/P	9056_ANIONS_IC: COMMON	48 Hours	Cool <=6C

July 20, 2017

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Juan Aguilar /CHPRC	JUN 22 2017	1200		Janelle Zunker CHPRC	JUN 22 2017	1200
Relinquished By	Janelle Zunker CHPRC	JUN 22 2017	1400	Received By	FEDEX		Date/Time
Relinquished By			Date/Time	Received By			Date/Time
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

PRINTED ON 4/26/2017 **FSR ID = FSR8371** A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 4261165	C.O.C. # I17-008-244 Page 1 of 1

Collector	Juan Aguilar /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	I17-008	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	303064
Project Title	100-NR-2 GW-OU Monitoring Apatite B	**Logbook No.**	HNF-N-506 84/22	**Ice Chest No.**	GWS-590
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7794 7326 7426
Protocol	CERCLA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	8078

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
B39N99	N	W	6-22-17	1024	1x125-mL G/P	9056_ANIONS_IC: COMMON	48 Hours	Cool <=6C

July 20, 2017

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Juan Aguilar /CHPRC			JUN 22 2017 1030	Janelle Zunker CHPRC			JUN 22 2017 1030
Janelle Zunker CHPRC			JUN 22 2017 1400			FEDEX	
		FX					
				M. Knutson			6-23-17 0920

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

PRINTED ON 4/26/2017 FSR ID = FSR34755 A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 426145	C.O.C. # I17-008-111 Page 1 of 1

Collector	Roger Friesz Jr. /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	I17-008	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	300071
Project Title	100-NR-2 GW-OU Monitoring Apatite B	**Logbook No.**	HNF-N-506 93/56	**Ice Chest No.**	GWS-600
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7794 732607450
Protocol	CERCLA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	8078

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
B39M59	N	W	JUN 2 2 2017	1100	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2
B39M59	N	W	↓	↓	1x1-L P	9310_ALPHABETA_GPC: COMMON	6 Months	HNO3 to pH <2
B39M59	N	W			1x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2
B39M59	N	W			4x1-L aG	WTPH_DIESEL: COMMON	14/40 Days	HCl to pH <2/Cool <=6C
B39M61	Y	W			1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2

July 20, 2017

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Roger Friesz Jr. /CHPRC		JUN 2 2 2017 1210		Curt Hoffman CHPRC		JUN 2 2 2017 1210
Relinquished By	Curt Hoffman CHPRC		JUN 2 2 2017 1400	Received By	FEDEX		Date/Time
Relinquished By			Date/Time	Received By			Date/Time
		FXO			M Kinslow		6-23-17 0920
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		

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

PRINTED ON 5/4/2017 **FSR ID = FSR44984** A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 426165	C.O.C. # I17-008-130 Page 1 of 1

Collector	Juan Aguilar /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	I17-008	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	303064
Project Title	100-NR-2 GW-OU Monitoring Apatite B	**Logbook No.**	HNF-N-506 84/22	**Ice Chest No.**	GWS-590
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7794 7326 7478
Protocol	CERCLA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	8078

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
B39NB0	Y	W	6-22-17	1024	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2
B39N98	N	W	↓	↓	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2
B39N98	N	W	↓	↓	1x1-L P	9310_ALPHABETA_GPC: COMMON	6 Months	HNO3 to pH <2
B39N98	N	W	6-22-17	1024	1x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2

July 20, 2017

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Juan Aguilar /CHPRC		JUN 22 2017	1030	Janelle Zunker CHPRC			JUN 22 2017 1030
Janelle Zunker CHPRC		JUN 22 2017	1400			FEDEX	
FX				M. Kinsloe		6-23-17	0920

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

PRINTED ON 4/26/2017 **FSR ID = FSR34755** A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 426165	C.O.C. # I17-008-251 Page 1 of 1

Collector	Roger Friesz Jr. /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	I17-008	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	300071
Project Title	100-NR-2 GW-OU Monitoring Apatite B	**Logbook No.**	HNF-N-506 93 / 56	**Ice Chest No.**	GWS-590
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7794 7326 7428
Protocol	CERCLA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	8078

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
B39M49	N	W	JUN 2 2 2017	1152	4x1-L aG	WTPH_DIESEL: COMMON	14/40 Days	HCl to pH <2/Cool <=6C

July 20, 2017

Relinquished By	Print	Sign	Date/Time
	Roger Friesz Jr. /CHPRC		JUN 2 2 2017 1210
Relinquished By	Janelle Zunker CHPRC		JUN 2 2 2017 1400
Relinquished By			Date/Time
Relinquished By			Date/Time

Received By	Print	Sign	Date/Time
	Janelle Zunker CHPRC		JUN 2 2 2017 1210
Received By			Date/Time
	FEDEX		
Received By			Date/Time
M. Knutson			6-23-17 0920
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

PRINTED ON 5/4/2017 **FSR ID = FSR44982** A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 426165	C.O.C. # I17-008-253 Page 1 of 1

Collector	Roger Friesz Jr. /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	I17-008	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	300071
Project Title	100-NR-2 GW-OU Monitoring Apatite B	**Logbook No.**	HNF-N-506 93 / 56	**Ice Chest No.**	GWS-590
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7794 7326 7428
Protocol	CERCLA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	8078

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
B39M65	N	W	JUN 2 2 2017	0850	4x1-L aG	WTPH_DIESEL: COMMON	14/40 Days	HCl to pH <2/Cool <=6C

July 20, 2017

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Roger Friesz Jr. /CHPRC		JUN 2 2 2017 1035		Janelle Zunker CHPRC		JUN 2 2 2017 1035
Relinquished By	Janelle Zunker CHPRC		JUN 2 2 2017 1400	Received By			Date/Time
Relinquished By			Date/Time	Received By	FEDEX		Date/Time
Relinquished By			Date/Time	Received By	M. Kinslow		6-23-17 0920

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

PRINTED ON 5/4/2017 **FSR ID = FSR44705** A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 42 coolers	C.O.C. # I17-008-271 Page 1 of 1

Collector	Juan Aguilar /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	I17-008	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	303064
Project Title	100-NR-2 GW-OU Monitoring Apatite B	**Logbook No.**	HNF-N-506 84/122	**Ice Chest No.**	GWS-590
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7794 9326 7426
Protocol	CERCLA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	8078

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
B39N42	N	W	6-22-17	1047	4x1-L aG	WTPH_DIESEL: COMMON	14/40 Days	HCl to pH <2/Cool <=6C

July 20, 2017

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Juan Aguilar /CHPRC			JUN 22 2017 1205	Janelle Zunker CHPRC			JUN 22 2017 1205
Janelle Zunker CHPRC			JUN 22 2017 1400	FEDEX			
FX				M. Karstan			6-23-17 0920

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

PRINTED ON 4/26/2017 FSR ID = FSR34740 A-6004-842 (REV 2)

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: CPRC	**SDG/AR/COC/Work Order:** 426165
Received By: MC	**Date Received:** 6-23-17
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 7794 7326 7450 1 C 6794 7636 1 C 6794 7500 1 C 7326 7458 1 C

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

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: 1 C
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR2-16 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?			✓	Circle Applicable: Seals broken Damaged container Leaking container Other (describe) *See Below
6	Samples requiring chemical preservation at proper pH?	✓			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, Are Encores or Soil Kits present? Yes___ No___ (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes No___ N/A (If unknown, select No) VOA vials free of headspace? Yes No___ N/A Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			

Comments (Use Continuation Form if needed):

* ONE Bottle FOR B39M49 Received Broken.

PM (or PMA) review: Initials DS Date 6/23/17 Page 1 of 1

GL-CHL-SR-001 Rev 5

Data Review Qualifier Definitions

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

Report Date: 20−JUL−17

Project Specific Qualifier Definitions for GEL Client Code: CPRC

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

Laboratory Certifications

List of current GEL Certifications as of 20 July 2017

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

FID Diesel Range Organics Analysis

Case Narrative

Diesel Range Organics
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL426165
Work Order #: 426165

Product: **Analysis of Diesel Range Organics by Flame Ionization Detector**
Analytical Method: NWTPH-Dx
Analytical Procedure: GL-OA-E-003 REV# 29
Analytical Batch: 1677947

Preparation Method: SW846 3535A
Preparation Procedure: GL-OA-E-013 REV# 31
Preparation Batch: 1677946

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

GEL Sample ID#	Client Sample Identification
426165013	B39M59
426165017	B39M49
426165018	B39M65
426165019	B39N42
1203820655	Method Blank (MB)
1203820656	Laboratory Control Sample (LCS)
1203820657	426165013(B39M59) Matrix Spike (MS)
1203820658	426165013(B39M59) 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.

Miscellaneous Information

Manual Integrations
Samples 1203820656 (LCS), 1203820657 (B39M59MS) and 1203820658 (B39M59MSD) 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.

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Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL426165 GEL Work Order: 426165

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

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

DL Indicates that sample is diluted.

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

RE Indicates that sample is re-extracted.

Review/Validation

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

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

Signature: Jimin Cao **Name: Jimin Cao**

Date: 20 JUL 2017 **Title: Data Validator**

Sample Data Summary

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**GEL426165**	**Date Collected:**	**06/22/2017 11:00**	**Matrix:**	**WATER**
Lab Sample ID:	**426165013**	**Date Received:**	**06/23/2017 09:20**		
		Client:	**CPRC001**	**Project:**	**CPRC0I17008**
Client ID:	**B39M59**	**Method:**	**NWTPH-Dx**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1677947**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**07/06/2017 00:28**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/28/2017 09:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**070517-KERO-MO\f7Fg0522.D**	**Column:**	**DB-5ms**		

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

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**GEL426165**	**Date Collected:**	**06/22/2017 11:52**	**Matrix:**	**WATER**
Lab Sample ID:	**426165017**	**Date Received:**	**06/23/2017 09:20**		
		Client:	**CPRC001**	**Project:**	**CPRC0I17008**
Client ID:	**B39M49**	**Method:**	**NWTPH-Dx**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1677947**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**07/06/2017 02:25**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/28/2017 09:25**	**Aliquot:**	**1050 mL**	**Final Volume:**	**1 mL**
Data File:	**070517-KERO-MO\f7Fg0525.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
68334-30-5	Diesel Range Organics	U	47.6	ug/L	47.6	190

July 20, 2017

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**GEL426165**	**Date Collected:**	**06/22/2017 08:50**	**Matrix:**	**WATER**
Lab Sample ID:	**426165018**	**Date Received:**	**06/23/2017 09:20**		
		Client:	**CPRC001**	**Project:**	**CPRC0I17008**
Client ID:	**B39M65**	**Method:**	**NWTPH-Dx**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1677947**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**07/06/2017 03:05**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/28/2017 09:25**	**Aliquot:**	**1050 mL**	**Final Volume:**	**1 mL**
Data File:	**070517-KERO-MO\f7Fg0526.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
68334-30-5	Diesel Range Organics	J	69.4	ug/L	47.6	190

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**GEL426165**	**Date Collected:**	**06/22/2017 10:47**	**Matrix:**	**WATER**
Lab Sample ID:	**426165019**	**Date Received:**	**06/23/2017 09:20**		
		Client:	**CPRC001**	**Project:**	**CPRC0I17008**
Client ID:	**B39N42**	**Method:**	**NWTPH-Dx**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1677947**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**07/06/2017 03:44**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/28/2017 09:25**	**Aliquot:**	**1020 mL**	**Final Volume:**	**1 mL**
Data File:	**070517-KERO-MO\f7Fg0527.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
68334-30-5	Diesel Range Organics	U	49.0	ug/L	49.0	196

Quality Control Summary

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

QC Summary

Report Date: July 20, 2017

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **426165**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Diesel Range Organics										
Batch 1677947										
QC1203820656 LCS										
Diesel Range Organics	2000			1570	ug/L		78	(70%-130%)	LXA1	07/05/17 22:30
**o-Terphenyl	20.0			18.2	ug/L		91	(60%-140%)		
QC1203820655 MB										
Diesel Range Organics			U	50.0	ug/L					07/05/17 21:51
**o-Terphenyl	20.0			13.5	ug/L		68	(60%-140%)		
QC1203820657 426165013 MS										
Diesel Range Organics	2000	U	50.0	1650	ug/L		82	(70%-130%)		07/06/17 01:07
**o-Terphenyl	20.0		15.8	17.6	ug/L		88	(60%-140%)		
QC1203820658 426165013 MSD										
Diesel Range Organics	2000	U	50.0	1600	ug/L	3	80	(0%-20%)		07/06/17 01:46
**o-Terphenyl	20.0		15.8	17.6	ug/L		88	(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.

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QC Summary

Workorder: **426165**

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

T Spike and/or spike duplicate sample recovery is outside control limits.

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

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

o Analyte failed to recover within LCS limits (0rganics only)

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

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

FID Diesel Range Organics

Surrogate Recovery Report

SDG Number: **GEL426165**

Matrix Type: **LIQUID**

Sample ID	Client ID	OTP %REC
1203820655	MB for batch 1677946	68
1203820656	LCS for batch 1677946	91
426165013	B39M59	79
1203820657	B39M59MS	88
1203820658	B39M59MSD	88
426165017	B39M49	95
426165018	B39M65	111
426165019	B39N42	84

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 #: GEL426165
Work Order #: 426165

Product: **Determination of Metals by ICP**
Analytical Method: SW846 3005A/6010D
Analytical Procedure: GL-MA-E-013 REV# 28
Analytical Batch: 1676948

Preparation Method: SW846 3005A
Preparation Procedure: GL-MA-E-006 REV# 13
Preparation Batch: 1676947

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

GEL Sample ID#	Client Sample Identification
426165013	B39M59
426165014	B39M61
426165015	B39NB0
426165016	B39N98
1203818262	Method Blank (MB)**ICP**
1203818263	Laboratory Control Sample (LCS)
1203818266	426165013(B39M59L) Serial Dilution (SD)
1203818264	426165013(B39M59S) Matrix Spike (MS)
1203818265	426165013(B39M59SD) 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. 426165013 (B39M59), 426165014 (B39M61), 426165015 (B39NB0) and 426165016 (B39N98).

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.

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Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL426165 GEL Work Order: 426165

The Qualifiers in this report are defined as follows:

* Duplicate analysis not within control limits

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

D Results are reported from a diluted aliquot of sample.

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

Review/Validation

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

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

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

Date: 11 JUL 2017 **Title: Data Validator**

Sample Data Summary

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL426165 **CONTRACT:** CPRC0I17008 **METHOD TYPE:** SW846

SAMPLE ID: 426165013 **BASIS:** As Received **DATE COLLECTED** 22−JUN−17

CLIENT ID: B39M59 **LEVEL:** Low **DATE RECEIVED** 23−JUN−17

MATRIX: WATER **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−36−0	Antimony	3.5	ug/L	U	3.5	10	10	1	P	HSC	06/30/17 14:44	063017−1	1676948
7440−38−2	Arsenic	5	ug/L	U	5	30	30	1	P	HSC	06/30/17 14:44	063017−1	1676948
7440−39−3	Barium	13	ug/L		1	5	5	1	P	HSC	06/30/17 14:44	063017−1	1676948
7440−43−9	Cadmium	1	ug/L	U	1	5	5	1	P	HSC	06/30/17 14:44	063017−1	1676948
7440−70−2	Calcium	17500	ug/L		50	200	200	1	P	HSC	06/30/17 14:44	063017−1	1676948
7440−47−3	Chromium	1.94	ug/L	B	1	5	5	1	P	HSC	06/30/17 14:44	063017−1	1676948
7440−48−4	Cobalt	1	ug/L	U	1	5	5	1	P	HSC	06/30/17 14:44	063017−1	1676948
7440−50−8	Copper	3	ug/L	U	3	10	10	1	P	HSC	06/30/17 14:44	063017−1	1676948
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	HSC	06/30/17 14:44	063017−1	1676948
7439−95−4	Magnesium	4090	ug/L		110	300	300	1	P	HSC	06/30/17 14:44	063017−1	1676948
7439−96−5	Manganese	2	ug/L	U	2	10	10	1	P	HSC	06/30/17 14:44	063017−1	1676948
7440−02−0	Nickel	1.5	ug/L	U	1.5	5	5	1	P	HSC	06/30/17 14:44	063017−1	1676948
7440−09−7	Potassium	895	ug/L		50	150	150	1	P	HSC	06/30/17 14:44	063017−1	1676948
7440−22−4	Silver	1	ug/L	U	1	5	5	1	P	HSC	06/30/17 14:44	063017−1	1676948
7440−23−5	Sodium	12500	ug/L		100	300	300	1	P	HSC	06/30/17 14:44	063017−1	1676948
7440−62−2	Vanadium	4.72	ug/L	B	1	5	5	1	P	HSC	06/30/17 14:44	063017−1	1676948
7440−66−6	Zinc	4.15	ug/L	B	3.3	10	10	1	P	HSC	06/30/17 14:44	063017−1	1676948

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1676948	1676947	SW846 3005A	50	mL	50	mL	06/23/17	CXW4

***Analytical Methods:**

P **SW846 3005A/6010D**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL426165 **CONTRACT:** CPRC0I17008 **METHOD TYPE:** SW846

SAMPLE ID: 426165014 **BASIS:** As Received **DATE COLLECTED** 22−JUN−17

CLIENT ID: B39M61 **LEVEL:** Low **DATE RECEIVED** 23−JUN−17

MATRIX: WATER **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−36−0	Antimony	3.55	ug/L	B	3.5	10	10	1	P	HSC	06/30/17 14:57	063017−1	1676948
7440−38−2	Arsenic	6.36	ug/L	B	5	30	30	1	P	HSC	06/30/17 14:57	063017−1	1676948
7440−39−3	Barium	12.8	ug/L		1	5	5	1	P	HSC	06/30/17 14:57	063017−1	1676948
7440−43−9	Cadmium	1	ug/L	U	1	5	5	1	P	HSC	06/30/17 14:57	063017−1	1676948
7440−70−2	Calcium	17500	ug/L		50	200	200	1	P	HSC	06/30/17 14:57	063017−1	1676948
7440−47−3	Chromium	1.63	ug/L	B	1	5	5	1	P	HSC	06/30/17 14:57	063017−1	1676948
7440−48−4	Cobalt	1	ug/L	U	1	5	5	1	P	HSC	06/30/17 14:57	063017−1	1676948
7440−50−8	Copper	3	ug/L	U	3	10	10	1	P	HSC	06/30/17 14:57	063017−1	1676948
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	HSC	06/30/17 14:57	063017−1	1676948
7439−95−4	Magnesium	4100	ug/L		110	300	300	1	P	HSC	06/30/17 14:57	063017−1	1676948
7439−96−5	Manganese	2	ug/L	U	2	10	10	1	P	HSC	06/30/17 14:57	063017−1	1676948
7440−02−0	Nickel	1.5	ug/L	U	1.5	5	5	1	P	HSC	06/30/17 14:57	063017−1	1676948
7440−09−7	Potassium	905	ug/L		50	150	150	1	P	HSC	06/30/17 14:57	063017−1	1676948
7440−22−4	Silver	1	ug/L	U	1	5	5	1	P	HSC	06/30/17 14:57	063017−1	1676948
7440−23−5	Sodium	12200	ug/L		100	300	300	1	P	HSC	06/30/17 14:57	063017−1	1676948
7440−62−2	Vanadium	4.49	ug/L	B	1	5	5	1	P	HSC	06/30/17 14:57	063017−1	1676948
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	P	HSC	06/30/17 14:57	063017−1	1676948

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1676948	1676947	SW846 3005A	50	mL	50	mL	06/23/17	CXW4

***Analytical Methods:**

P **SW846 3005A/6010D**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL426165 **CONTRACT:** CPRC0I17008 **METHOD TYPE:** SW846

SAMPLE ID: 426165015 **BASIS:** As Received **DATE COLLECTED** 22−JUN−17

CLIENT ID: B39NB0 **LEVEL:** Low **DATE RECEIVED** 23−JUN−17

MATRIX: WATER **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−36−0	Antimony	3.5	ug/L	U	3.5	10	10	1	P	HSC	06/30/17 15:00	063017−1	1676948
7440−38−2	Arsenic	5	ug/L	U	5	30	30	1	P	HSC	06/30/17 15:00	063017−1	1676948
7440−39−3	Barium	16.6	ug/L		1	5	5	1	P	HSC	06/30/17 15:00	063017−1	1676948
7440−43−9	Cadmium	1	ug/L	U	1	5	5	1	P	HSC	06/30/17 15:00	063017−1	1676948
7440−70−2	Calcium	20100	ug/L		50	200	200	1	P	HSC	06/30/17 15:00	063017−1	1676948
7440−47−3	Chromium	1	ug/L	U	1	5	5	1	P	HSC	06/30/17 15:00	063017−1	1676948
7440−48−4	Cobalt	1	ug/L	U	1	5	5	1	P	HSC	06/30/17 15:00	063017−1	1676948
7440−50−8	Copper	3	ug/L	U	3	10	10	1	P	HSC	06/30/17 15:00	063017−1	1676948
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	HSC	06/30/17 15:00	063017−1	1676948
7439−95−4	Magnesium	4820	ug/L		110	300	300	1	P	HSC	06/30/17 15:00	063017−1	1676948
7439−96−5	Manganese	2	ug/L	U	2	10	10	1	P	HSC	06/30/17 15:00	063017−1	1676948
7440−02−0	Nickel	1.5	ug/L	U	1.5	5	5	1	P	HSC	06/30/17 15:00	063017−1	1676948
7440−09−7	Potassium	908	ug/L		50	150	150	1	P	HSC	06/30/17 15:00	063017−1	1676948
7440−22−4	Silver	1	ug/L	U	1	5	5	1	P	HSC	06/30/17 15:00	063017−1	1676948
7440−23−5	Sodium	2660	ug/L		100	300	300	1	P	HSC	06/30/17 15:00	063017−1	1676948
7440−62−2	Vanadium	1.08	ug/L	B	1	5	5	1	P	HSC	06/30/17 15:00	063017−1	1676948
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	P	HSC	06/30/17 15:00	063017−1	1676948

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1676948	1676947	SW846 3005A	50	mL	50	mL	06/23/17	CXW4

***Analytical Methods:**

P **SW846 3005A/6010D**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL426165 **CONTRACT:** CPRC0I17008 **METHOD TYPE:** SW846

SAMPLE ID: 426165016 **BASIS:** As Received **DATE COLLECTED** 22−JUN−17

CLIENT ID: B39N98 **LEVEL:** Low **DATE RECEIVED** 23−JUN−17

MATRIX: WATER **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440−36−0	Antimony	3.5	ug/L	U	3.5	10	10	1	P	HSC	06/30/17 15:03	063017−1	1676948
7440−38−2	Arsenic	5	ug/L	U	5	30	30	1	P	HSC	06/30/17 15:03	063017−1	1676948
7440−39−3	Barium	16.5	ug/L		1	5	5	1	P	HSC	06/30/17 15:03	063017−1	1676948
7440−43−9	Cadmium	1	ug/L	U	1	5	5	1	P	HSC	06/30/17 15:03	063017−1	1676948
7440−70−2	Calcium	19600	ug/L		50	200	200	1	P	HSC	06/30/17 15:03	063017−1	1676948
7440−47−3	Chromium	1	ug/L	U	1	5	5	1	P	HSC	06/30/17 15:03	063017−1	1676948
7440−48−4	Cobalt	1	ug/L	U	1	5	5	1	P	HSC	06/30/17 15:03	063017−1	1676948
7440−50−8	Copper	3	ug/L	U	3	10	10	1	P	HSC	06/30/17 15:03	063017−1	1676948
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	HSC	06/30/17 15:03	063017−1	1676948
7439−95−4	Magnesium	4730	ug/L		110	300	300	1	P	HSC	06/30/17 15:03	063017−1	1676948
7439−96−5	Manganese	2	ug/L	U	2	10	10	1	P	HSC	06/30/17 15:03	063017−1	1676948
7440−02−0	Nickel	1.5	ug/L	U	1.5	5	5	1	P	HSC	06/30/17 15:03	063017−1	1676948
7440−09−7	Potassium	907	ug/L		50	150	150	1	P	HSC	06/30/17 15:03	063017−1	1676948
7440−22−4	Silver	1	ug/L	U	1	5	5	1	P	HSC	06/30/17 15:03	063017−1	1676948
7440−23−5	Sodium	2520	ug/L		100	300	300	1	P	HSC	06/30/17 15:03	063017−1	1676948
7440−62−2	Vanadium	1.08	ug/L	B	1	5	5	1	P	HSC	06/30/17 15:03	063017−1	1676948
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	P	HSC	06/30/17 15:03	063017−1	1676948

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1676948	1676947	SW846 3005A	50	mL	50	mL	06/23/17	CXW4

***Analytical Methods:**

P **SW846 3005A/6010D**

Quality Control Summary

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

QC Summary

Report Date: July 11, 2017

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **426165**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP										
Batch 1676948										
QC1203818263 LCS										
Antimony	500			484	ug/L		96.9	(80%-120%)	HSC	06/30/17 14:41
Arsenic	500			479	ug/L		95.8	(80%-120%)		
Barium	500			491	ug/L		98.2	(80%-120%)		
Cadmium	500			476	ug/L		95.1	(80%-120%)		
Calcium	5000			4920	ug/L		98.4	(80%-120%)		
Chromium	500			481	ug/L		96.2	(80%-120%)		
Cobalt	500			487	ug/L		97.4	(80%-120%)		
Copper	500			497	ug/L		99.4	(80%-120%)		
Iron	5000			5170	ug/L		103	(80%-120%)		
Magnesium	5000			5070	ug/L		101	(80%-120%)		
Manganese	500			490	ug/L		98	(80%-120%)		
Nickel	500			491	ug/L		98.1	(80%-120%)		
Potassium	5000			4920	ug/L		98.4	(80%-120%)		

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

QC Summary

Workorder: **426165**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP										
Batch 1676948										
Silver	500			478	ug/L		95.6	(80%-120%)	HSC	06/30/17 14:41
Sodium	5000			5430	ug/L		109	(80%-120%)		
Vanadium	500			493	ug/L		98.5	(80%-120%)		
Zinc	500			465	ug/L		92.9	(80%-120%)		
QC1203818262 MB										
Antimony			U	3.50	ug/L					06/30/17 14:38
Arsenic			U	5.00	ug/L					
Barium			U	1.00	ug/L					
Cadmium			U	1.00	ug/L					
Calcium			U	50.0	ug/L					
Chromium			U	1.00	ug/L					
Cobalt			U	1.00	ug/L					
Copper			U	3.00	ug/L					
Iron			U	30.0	ug/L					
Magnesium			U	110	ug/L					
Manganese			U	2.00	ug/L					

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QC Summary

Workorder: **426165**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP											
Batch 1676948											
Nickel				U	1.50	ug/L				HSC	06/30/17 14:38
Potassium				U	50.0	ug/L					
Silver				U	1.00	ug/L					
Sodium				U	100	ug/L					
Vanadium				U	1.00	ug/L					
Zinc				U	3.30	ug/L					
QC1203818264 426165013 MS											
Antimony	500	U	3.50		495	ug/L		98.6	(75%-125%)		06/30/17 14:47
Arsenic	500	U	5.00		498	ug/L		98.7	(75%-125%)		
Barium	500		13.0		510	ug/L		99.4	(75%-125%)		
Cadmium	500	U	1.00		481	ug/L		96.2	(75%-125%)		
Calcium	5000		17500		22900	ug/L		108	(75%-125%)		
Chromium	500	B	1.94		491	ug/L		97.8	(75%-125%)		
Cobalt	500	U	1.00		488	ug/L		97.6	(75%-125%)		
Copper	500	U	3.00		508	ug/L		101	(75%-125%)		
Iron	5000	U	30.0		5140	ug/L		103	(75%-125%)		

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QC Summary

Workorder: **426165**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP											
Batch 1676948											
Magnesium	5000		4090		9150	ug/L		101	(75%-125%)	HSC	06/30/17 14:47
Manganese	500	U	2.00		492	ug/L		98.3	(75%-125%)		
Nickel	500	U	1.50		492	ug/L		98.3	(75%-125%)		
Potassium	5000		895		5960	ug/L		101	(75%-125%)		
Silver	500	U	1.00		486	ug/L		97.2	(75%-125%)		
Sodium	5000		12500		18000	ug/L		110	(75%-125%)		
Vanadium	500	B	4.72		510	ug/L		101	(75%-125%)		
Zinc	500	B	4.15		474	ug/L		94	(75%-125%)		
QC1203818265 426165013 MSD											
Antimony	500	U	3.50		485	ug/L	2.06	96.6	(0%-20%)		06/30/17 14:51
Arsenic	500	U	5.00		483	ug/L	3.1	95.7	(0%-20%)		
Barium	500		13.0		495	ug/L	2.95	96.4	(0%-20%)		
Cadmium	500	U	1.00		468	ug/L	2.81	93.5	(0%-20%)		
Calcium	5000		17500		22500	ug/L	1.6	101	(0%-20%)		
Chromium	500	B	1.94		475	ug/L	3.21	94.7	(0%-20%)		
Cobalt	500	U	1.00		475	ug/L	2.71	95	(0%-20%)		

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QC Summary

Workorder: **426165**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP											
Batch 1676948											
Copper	500	U	3.00		493	ug/L	3.03	98.4	(0%-20%)	HSC	06/30/17 14:51
Iron	5000	U	30.0		5100	ug/L	0.889	102	(0%-20%)		
Magnesium	5000		4090		9070	ug/L	0.934	99.5	(0%-20%)		
Manganese	500	U	2.00		478	ug/L	2.86	95.5	(0%-20%)		
Nickel	500	U	1.50		478	ug/L	2.86	95.5	(0%-20%)		
Potassium	5000		895		5800	ug/L	2.72	98.1	(0%-20%)		
Silver	500	U	1.00		472	ug/L	2.96	94.3	(0%-20%)		
Sodium	5000		12500		17900	ug/L	0.424	109	(0%-20%)		
Vanadium	500	B	4.72		495	ug/L	3.07	98	(0%-20%)		
Zinc	500	B	4.15		461	ug/L	2.78	91.4	(0%-20%)		
QC1203818266 426165013 SDILT											
Antimony		U	1.96	DU	17.5	ug/L	N/A		(0%-20%)		06/30/17 14:54
Arsenic		U	4.63	DU	25.0	ug/L	N/A		(0%-20%)		
Barium			13.0	BD	2.71	ug/L	4.43		(0%-20%)		
Cadmium		U	-0.0687	DU	5.00	ug/L	N/A		(0%-20%)		
Calcium			17500	D	3500	ug/L	.132		(0%-20%)		

GEL LABORATORIES LLC
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QC Summary

Workorder: **426165**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP										
Batch 1676948										
Chromium	B	1.94	DU	5.00	ug/L	N/A		(0%-20%)	HSC	06/30/17 14:54
Cobalt	U	-0.117	DU	5.00	ug/L	N/A		(0%-20%)		
Copper	U	0.623	DU	15.0	ug/L	N/A		(0%-20%)		
Iron	U	11.5	DU	150	ug/L	N/A		(0%-20%)		
Magnesium		4090	D	798	ug/L	2.48		(0%-20%)		
Manganese	U	0.898	DU	10.0	ug/L	N/A		(0%-20%)		
Nickel	U	0.405	DU	7.50	ug/L	N/A		(0%-20%)		
Potassium		895	BD	128	ug/L	28.7		(0%-20%)		
Silver	U	-0.104	DU	5.00	ug/L	N/A		(0%-20%)		
Sodium		12500	D	2640	ug/L	5.89		(0%-20%)		
Vanadium	B	4.72	DU	5.00	ug/L	N/A		(0%-20%)		
Zinc	B	4.15	BD	3.46	ug/L	317		(0%-20%)		

Notes:

The Qualifiers in this report are defined as follows:

- * Duplicate analysis not within control limits
- + Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- C Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.
- D Results are reported from a diluted aliquot of sample.

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QC Summary

Workorder: **426165**

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

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 #: GEL426165
Work Order #: 426165

Product: **Ion Chromatography**
Analytical Method: 9056_ANIONS_IC
Analytical Procedure: GL-GC-E-086 REV# 25
Analytical Batches: 1676849 and 1676860

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

GEL Sample ID#	Client Sample Identification
426165001	B39M50
426165002	B39M56
426165003	B39M60
426165004	B39M66
426165005	B39N08
426165006	B39N13
426165007	B39N25
426165008	B39N43
426165009	B39N63
426165010	B39N68
426165011	B39N95
426165012	B39N99
1203818073	Method Blank (MB)
1203818074	Laboratory Control Sample (LCS)
1203818075	426165006(B39N13) Sample Duplicate (DUP)
1203818076	426165006(B39N13) Post Spike (PS)
1203818077	Method Blank (MB)
1203818078	Laboratory Control Sample (LCS)
1203818079	426165012(B39N99) Sample Duplicate (DUP)
1203818080	426165012(B39N99) 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.

Miscellaneous Information

Manual Integrations
Samples 1203818075 (B39N13DUP), 426165002 (B39M56), 426165006 (B39N13) and 426165011 (B39N95) were manually integrated to correctly position the baseline as set in the calibration standards.

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: GEL426165 GEL Work Order: 426165

The Qualifiers in this report are defined as follows:

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

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

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: 27 JUN 2017 **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 27, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF I17-008

Client Sample ID: B39M50
Sample ID: 426165001
Matrix: WATER
Collect Date: 22-JUN-17 11:52
Receive Date: 23-JUN-17
Collector: Client

Project: CPRC0I17008
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: COMMON "As Received"												
Chloride		2740	67.0	200	ug/L		1	MAR1	06/23/17	1046	1676849	1
Fluoride	B	114	33.0	500	ug/L		1					
Nitrate-N		956	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Sulfate		12400	133	500	ug/L		1					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: June 27, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF I17-008

Client Sample ID: B39M56
Sample ID: 426165002
Matrix: WATER
Collect Date: 22-JUN-17 09:56
Receive Date: 23-JUN-17
Collector: Client

Project: CPRC0I17008
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: COMMON "As Received"												
Chloride		3800	67.0	200	ug/L		1	MAR1	06/23/17	1114	1676849	1
Fluoride	B	46.8	33.0	500	ug/L		1					
Nitrate-N		406	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Sulfate		7380	133	500	ug/L		1					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: June 27, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF I17-008

Client Sample ID: B39M60
Sample ID: 426165003
Matrix: WATER
Collect Date: 22-JUN-17 11:00
Receive Date: 23-JUN-17
Collector: Client

Project: CPRC0I17008
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: COMMON "As Received"												
Chloride		3030	67.0	200	ug/L		1	MAR1	06/23/17	1143	1676849	1
Fluoride	B	114	33.0	500	ug/L		1					
Nitrate-N		740	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Sulfate		8920	133	500	ug/L		1					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: June 27, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF I17-008

Client Sample ID: B39M66
Sample ID: 426165004
Matrix: WATER
Collect Date: 22-JUN-17 08:50
Receive Date: 23-JUN-17
Collector: Client

Project: CPRC0I17008
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: COMMON "As Received"												
Chloride		2590	67.0	200	ug/L		1	MAR1	06/23/17	1212	1676849	1
Fluoride	B	85.0	33.0	500	ug/L		1					
Nitrate-N		634	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Sulfate		8200	133	500	ug/L		1					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: June 27, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF I17-008

Client Sample ID: B39N08
Sample ID: 426165005
Matrix: WATER
Collect Date: 22-JUN-17 09:01
Receive Date: 23-JUN-17
Collector: Client

Project: CPRC0I17008
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: COMMON "As Received"												
Chloride		1540	67.0	200	ug/L		1	MAR1	06/23/17	1241	1676849	1
Fluoride	B	124	33.0	500	ug/L		1					
Nitrate-N		395	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Sulfate		9180	133	500	ug/L		1					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: June 27, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF I17-008

Client Sample ID: B39N13
Sample ID: 426165006
Matrix: WATER
Collect Date: 22-JUN-17 12:00
Receive Date: 23-JUN-17
Collector: Client

Project: CPRC0I17008
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: COMMON "As Received"												
Chloride		1530	67.0	200	ug/L		1	MAR1	06/23/17	1310	1676849	1
Fluoride	B	35.0	33.0	500	ug/L		1					
Nitrate-N	U	33.0	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Sulfate		8040	133	500	ug/L		1					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: June 27, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF I17-008

Client Sample ID: B39N25
Sample ID: 426165007
Matrix: WATER
Collect Date: 22-JUN-17 09:21
Receive Date: 23-JUN-17
Collector: Client

Project: CPRC0I17008
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: COMMON "As Received"												
Chloride		1440	67.0	200	ug/L		1	MAR1	06/23/17	1049	1676860	1
Fluoride	B	71.4	33.0	500	ug/L		1					
Nitrate-N	B	147	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Sulfate		8740	133	500	ug/L		1					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: June 27, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF I17-008

Client Sample ID: B39N43
Sample ID: 426165008
Matrix: WATER
Collect Date: 22-JUN-17 10:47
Receive Date: 23-JUN-17
Collector: Client

Project: CPRC0I17008
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: COMMON "As Received"												
Chloride		1430	67.0	200	ug/L		1	MAR1	06/23/17	1118	1676860	1
Fluoride	B	85.7	33.0	500	ug/L		1					
Nitrate-N	B	154	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Sulfate		8570	133	500	ug/L		1					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: June 27, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF I17-008

Client Sample ID: B39N63
Sample ID: 426165009
Matrix: WATER
Collect Date: 22-JUN-17 09:54
Receive Date: 23-JUN-17
Collector: Client

Project: CPRC0I17008
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: COMMON "As Received"												
Chloride		2280	67.0	200	ug/L		1	MAR1	06/23/17	1147	1676860	1
Fluoride	B	96.6	33.0	500	ug/L		1					
Nitrate-N		712	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Sulfate		9530	133	500	ug/L		1					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: June 27, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF I17-008

Client Sample ID: B39N68
Sample ID: 426165010
Matrix: WATER
Collect Date: 22-JUN-17 08:19
Receive Date: 23-JUN-17
Collector: Client

Project: CPRC0I17008
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: COMMON "As Received"												
Chloride		1070	67.0	200	ug/L		1	MAR1	06/23/17	1217	1676860	1
Fluoride	B	82.8	33.0	500	ug/L		1					
Nitrate-N	B	185	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Sulfate		7490	133	500	ug/L		1					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: June 27, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF I17-008

Client Sample ID: B39N95
Sample ID: 426165011
Matrix: WATER
Collect Date: 22-JUN-17 11:35
Receive Date: 23-JUN-17
Collector: Client

Project: CPRC0I17008
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: COMMON "As Received"												
Chloride		1360	67.0	200	ug/L		1	MAR1	06/23/17	1246	1676860	1
Fluoride	U	33.0	33.0	500	ug/L		1					
Nitrate-N	U	33.0	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Sulfate		2640	133	500	ug/L		1					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: June 27, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF I17-008

Client Sample ID: B39N99
Sample ID: 426165012
Matrix: WATER
Collect Date: 22-JUN-17 10:24
Receive Date: 23-JUN-17
Collector: Client

Project: CPRC0I17008
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: COMMON "As Received"												
Chloride		1170	67.0	200	ug/L		1	MAR1	06/23/17	1315	1676860	1
Fluoride	B	94.4	33.0	500	ug/L		1					
Nitrate-N		344	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Sulfate		8080	133	500	ug/L		1					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	

Notes:

Column headers are defined as follows:

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

Quality Control Summary

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

QC Summary

Report Date: June 27, 2017

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **426165**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography												
Batch 1676849												
QC1203818075 426165006 DUP												
Chloride			1530		1530	ug/L	0.118		(0%-20%)	MAR1	06/23/17	13:39
Fluoride		B	35.0	B	34.3	ug/L	2.02 ^		(+/-500)			
Nitrate-N		U	33.0	U	33.0	ug/L	N/A					
Nitrite-N		U	33.0	U	33.0	ug/L	N/A					
Sulfate			8040		8060	ug/L	0.219		(0%-20%)			
QC1203818074 LCS												
Chloride	5000				4510	ug/L		90.2	(80%-120%)		06/23/17	15:06
Fluoride	2500				2310	ug/L		92.4	(80%-120%)			
Nitrate-N	2500				2280	ug/L		91	(80%-120%)			
Nitrite-N	2500				2320	ug/L		92.9	(80%-120%)			
Sulfate	10000				9230	ug/L		92.3	(80%-120%)			
QC1203818073 MB												
Chloride				U	67.0	ug/L					06/23/17	14:37
Fluoride				U	33.0	ug/L						
Nitrate-N				U	33.0	ug/L						

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QC Summary

Workorder: **426165**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1676849											
Nitrite-N				U	33.0	ug/L				MAR1	06/23/17 14:37
Sulfate				U	133	ug/L					
QC1203818076 426165006 PS											
Chloride	5.00		1.53		6.36	mg/L		96.8	(75%-125%)		06/23/17 14:08
Fluoride	2.50	B	0.035		2.44	mg/L		96.2	(75%-125%)		
Nitrate-N	2.50	U	0.00		2.36	mg/L		94.3	(75%-125%)		
Nitrite-N	2.50	U	0.00		2.42	mg/L		96.8	(75%-125%)		
Sulfate	10.0		8.04		19.0	mg/L		109	(75%-125%)		
Batch 1676860											
QC1203818079 426165012 DUP											
Chloride			1170		1180	ug/L	0.51		(0%-20%)	MAR1	06/23/17 13:45
Fluoride		B	94.4	B	93.7	ug/L	0.744 ^		(+/-500)		
Nitrate-N			344		346	ug/L	0.319 ^		(+/-250)		
Nitrite-N		U	33.0	U	33.0	ug/L	N/A				
Sulfate			8080		8060	ug/L	0.266		(0%-20%)		
QC1203818078 LCS											
Chloride	5000				4500	ug/L		90	(80%-120%)		06/23/17 15:13
Fluoride	2500				2360	ug/L		94.3	(80%-120%)		

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QC Summary

Workorder: **426165**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1676860											
Nitrate-N	2500				2280	ug/L		91.1	(80%-120%)	MAR1	06/23/17 15:13
Nitrite-N	2500				2310	ug/L		92.6	(80%-120%)		
Sulfate	10000				9210	ug/L		92.1	(80%-120%)		
QC1203818077 MB											
Chloride				U	67.0	ug/L					06/23/17 14:44
Fluoride				U	33.0	ug/L					
Nitrate-N				U	33.0	ug/L					
Nitrite-N				U	33.0	ug/L					
Sulfate				U	133	ug/L					
QC1203818080 426165012 PS											
Chloride	5.00		1.17		5.85	mg/L		93.5	(75%-125%)		06/23/17 14:14
Fluoride	2.50	B	0.0944		2.42	mg/L		93.1	(75%-125%)		
Nitrate-N	2.50		0.344		2.65	mg/L		92.1	(75%-125%)		
Nitrite-N	2.50	U	0.00		2.34	mg/L		93.6	(75%-125%)		
Sulfate	10.0		8.08		18.4	mg/L		103	(75%-125%)		

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

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

QC Summary

Workorder: **426165**

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

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

C Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.

D Results are reported from a diluted aliquot of sample.

N Spike Sample recovery is outside control limits.

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

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

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

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

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL426165
Work Order #: 426165

Product: **SRISO_SEP_PRECIP_GPC: COMMON**
Analytical Method: SRISO_SEP_PRECIP_GPC
Analytical Procedure: GL-RAD-A-004 REV# 18
Analytical Batch: 1678771

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

GEL Sample ID#	Client Sample Identification
426165013	B39M59
426165016	B39N98
1203822631	Method Blank (MB)
1203822632	426165013(B39M59) Sample Duplicate (DUP)
1203822633	Laboratory Control Sample (LCS)

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

Data Summary:

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

Technical Information

Recounts
Sample 1203822633 (LCS) was recounted due to high recovery. The recount is reported. Samples 1203822632 (B39M59DUP), 426165013 (B39M59) and 426165016 (B39N98) were verified by recounting at least five days from the separation date. The recounts are reported.

Product: **9310_ALPHABETA_GPC: COMMON**
Analytical Method: 9310_ALPHABETA_GPC
Analytical Procedure: GL-RAD-A-001 REV# 19
Analytical Batch: 1680213

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

GEL Sample ID#	Client Sample Identification
426165013	B39M59
426165016	B39N98
1203825674	Method Blank (MB)
1203825675	426412007(B39N83) Sample Duplicate (DUP)
1203825676	426412007(B39N83) Matrix Spike (MS)

1203825677	426412007(B39N83) Matrix Spike Duplicate (MSD)
1203825678	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 matrix spike and matrix spike duplicate, 1203825676 (B39N83MS) and 1203825677 (B39N83MSD), did not meet the alpha relative percent difference requirement; however, they do meet the relative error ratio and spike recovery requirements.

Technical Information

Sample Re-prep/Re-analysis
Samples 426165013 (B39M59) and 426165016 (B39N98) were reprepped due to low recovery. The re-analysis is being reported.

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 1203825676 (B39N83MS) and 1203825677 (B39N83MSD) were recounted due to high recovery. The recounts are reported. Sample 1203825675 (B39N83DUP) was recounted due to high relative percent difference/relative error ratio. The recount is reported.

Miscellaneous Information

Additional Comments
The matrix spike and matrix spike duplicate, 1203825676 (B39N83MS) and 1203825677 (B39N83MSD), 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.

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Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL426165 GEL Work Order: 426165

The Qualifiers in this report are defined as follows:

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

Review/Validation

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

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

Signature:  **Name: Spencer Collins**

Date: 13 JUL 2017 **Title: Analyst I**

Sample Data Summary

Rad

Certificate of Analysis
Sample Summary

SDG Number:	**GEL426165**	**Client:**	**CPRC001**	**Project:**	**CPRC0I17008**
Lab Sample ID:	**426165013**	**Date Collected:**	**06/22/2017 11:00**	**Matrix:**	**WATER**
		Date Received:	**06/23/2017 09:20**		
Client ID:	**B39M59**			**Prep Basis:**	**"As Received"**
Batch ID:	**1678771**	**Method:**	**SRISO_SEP_PRECIP_GPC**	**SOP Ref:**	**GL-RAD-A-004**
Run Date:	**07/05/2017 08:18**	**Analyst:**	**KSD1**	**Instrument:**	**PIC6B**
Data File:	**S1678771r1.xls**	**Aliquot:**	**300 mL**	**Count Time:**	**60 min**
Prep Batch:	**1678771**	**Prep Method:**	**EPA 905.0 Modified/DOE RP5**		
Prep Date:	**06/30/2017 10:17**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90		143	pCi/L	+/-5.60	23.1	1.55	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	4.20	7.75	mg	54.2	(40%-110%)

Comments:

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

Rad

Certificate of Analysis
Sample Summary

SDG Number:	**GEL426165**	**Client:**	**CPRC001**	**Project:**	**CPRC0I17008**
Lab Sample ID:	**426165013**	**Date Collected:**	**06/22/2017 11:00**	**Matrix:**	**WATER**
		Date Received:	**06/23/2017 09:20**		
Client ID:	**B39M59**			**Prep Basis:**	**"As Received"**
Batch ID:	**1680213**	**Method:**	**9310_ALPHABETA_GPC**	**SOP Ref:**	**GL-RAD-A-001**
Run Date:	**07/08/2017 11:16**	**Analyst:**	**LXB3**	**Instrument:**	**LB4100C1**
Data File:	**AB1680213r.xls**	**Aliquot:**	**150 mL**	**Count Time:**	**60 min**
Prep Batch:	**1680213**	**Prep Method:**	**EPA 900.0/SW846 9310**		
Prep Date:	**07/07/2017 06:43**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
12587-46-1	Alpha *ALPHA*	U	0.956	pCi/L	+/-1.33	1.34	2.29	3.00
12587-47-2	Beta *BETA*		346	pCi/L	+/-11.8	58.2	3.46	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.

Rad

Certificate of Analysis
Sample Summary

SDG Number:	**GEL426165**	**Client:**	**CPRC001**	**Project:**	**CPRC0I17008**
Lab Sample ID:	**426165016**	**Date Collected:**	**06/22/2017 10:24**	**Matrix:**	**WATER**
		Date Received:	**06/23/2017 09:20**		
Client ID:	**B39N98**			**Prep Basis:**	**"As Received"**
Batch ID:	**1678771**	**Method:**	**SRISO_SEP_PRECIP_GPC**	**SOP Ref:**	**GL-RAD-A-004**
Run Date:	**07/05/2017 08:18**	**Analyst:**	**KSD1**	**Instrument:**	**PIC6C**
Data File:	**S1678771r1.xls**	**Aliquot:**	**300 mL**	**Count Time:**	**60 min**
Prep Batch:	**1678771**	**Prep Method:**	**EPA 905.0 Modified/DOE RP5**		
Prep Date:	**06/30/2017 10:17**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90		221	pCi/L	+/-6.30	36.8	1.35	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	5.10	7.75	mg	65.8	(40%-110%)

Comments:

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

Rad

Certificate of Analysis
Sample Summary

SDG Number:	**GEL426165**	**Client:**	**CPRC001**	**Project:**	**CPRC0I17008**
Lab Sample ID:	**426165016**	**Date Collected:**	**06/22/2017 10:24**	**Matrix:**	**WATER**
		Date Received:	**06/23/2017 09:20**		
Client ID:	**B39N98**			**Prep Basis:**	**"As Received"**
Batch ID:	**1680213**	**Method:**	**9310_ALPHABETA_GPC**	**SOP Ref:**	**GL-RAD-A-001**
Run Date:	**07/08/2017 11:16**	**Analyst:**	**LXB3**	**Instrument:**	**LB4100C2**
Data File:	**AB1680213r.xls**	**Aliquot:**	**150 mL**	**Count Time:**	**60 min**
Prep Batch:	**1680213**	**Prep Method:**	**EPA 900.0/SW846 9310**		
Prep Date:	**07/07/2017 06:43**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
12587-46-1	Alpha *ALPHA*	U	0.443	pCi/L	+/-1.26	1.26	2.53	3.00
12587-47-2	Beta *BETA*		403	pCi/L	+/-12.5	68.6	3.11	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: 426165

Report Date: July 12, 2017

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gas Flow									
Batch 1678771									
QC1203822631 MB									
Strontium-90			U	0.116	pCi/L			KSD1	07/03/1712:40
Uncert:				+/-0.463					
TPU:				+/-0.463					
**Strontium Carrier	7.75			6.10	mg	REC: 79	(40%-110%)		
QC1203822632 426165013 DUP									
Strontium-90		143		149	pCi/L				07/05/1708:18
Uncert:		+/-5.60		+/-4.87		RPD: 4	(0% - 20%)		
TPU:		+/-23.1		+/-23.7		RER: 0.373	(0-2)		
**Strontium Carrier	7.75	4.20		5.90	mg	REC: 76	(40%-110%)		
QC1203822633 LCS									
Strontium-90	72.8			85.5	pCi/L	REC: 117	(80%-120%)		07/05/1715:43
Uncert:				+/-3.73					
TPU:				+/-14.0					
**Strontium Carrier	7.75			5.80	mg	REC: 75	(40%-110%)		
Batch 1680213									
QC1203825674 MB									
Alpha			U	0.592	pCi/L			LXB3	07/08/1711:09
Uncert:				+/-1.12					
TPU:				+/-1.13					
Beta			U	1.75	pCi/L				
Uncert:				+/-1.60					
TPU:				+/-1.62					
QC1203825675 426412007 DUP									
Alpha	U	-0.378	U	-1.19	pCi/L				07/10/1711:55
Uncert:		+/-1.14		+/-1.13		RPD: 0	N/A		
TPU:		+/-1.15		+/-1.13		RER: 0.986	(0-2)		
Beta		529		540	pCi/L				
Uncert:		+/-11.6		+/-11.7		RPD: 2	(0% - 20%)		
TPU:		+/-87.0		+/-88.4		RER: 0.185	(0-2)		
QC1203825676 426412007 MS									
Alpha	242 U	-0.378		209	pCi/L	REC: 87	(75%-125%)		07/10/1710:10
Uncert:		+/-1.14		+/-23.6					
TPU:		+/-1.15		+/-45.4					
Beta	874	529		1430	pCi/L	REC: 104	(75%-125%)		
Uncert:		+/-11.6		+/-41.1					
TPU:		+/-87.0		+/-236					
QC1203825677 426412007 MSD									
Alpha	242 U	-0.378		280	pCi/L	REC: 116	(75%-125%)		07/10/1710:10
Uncert:		+/-1.14		+/-25.6		RPD: 29*	(0%-20%)		
TPU:		+/-1.15		+/-52.8		RER: 1.99	(0-2)		
Beta	874	529		1590	pCi/L	REC: 122	(75%-125%)		
Uncert:		+/-11.6		+/-45.0		RPD: 10	(0%-20%)		
TPU:		+/-87.0		+/-262		RER: 0.863	(0-2)		
QC1203825678 LCS									

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QC Summary

Workorder: **426165**

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date	Time
Rad Gas Flow										
Batch 1680213										
Alpha	80.6			81.6	pCi/L	REC: 101	(80%-120%)			
	Uncert:			+/-7.55						
	TPU:			+/-15.6						
Beta	291			323	pCi/L	REC: 111	(80%-120%)			
	Uncert:			+/-11.3						
	TPU:			+/-53.6						

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: **426165**

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.