GEL Laboratories LLC
a member of The GEL Group INC

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gel.com

March 27, 2018

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

Re: CHPRC SAF F16-046
Work Order: 445848
SDG: GEL445848

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on March 14, 2018. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

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

Sincerely,

Heather Shaffer

Heather Shaffer
Project Manager

Purchase Order: 304235 - 7C
Chain of Custody: F16-046-1621, F16-046-1622, F16-046-1627, F16-046-1628, F16-046-1632, F16-046-1633, F16-046-1638, F16-046-1639, F16-046-1641, F16-046-1642, F16-046-1643, F16-046-1644, F16-046-1645, F16-046-1646, F16-046-1649 and F16-046-1650
Enclosures

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Case Narrative

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF F16-046
SDG: GEL445848

March 27, 2018

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 March 14, 2018, for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

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

Sample Identification
The laboratory received the following samples:

Laboratory Identification	Sample Description
445848001	B3HMT9
445848002	B3HMV5
445848003	B3HXR1
445848004	B3HMV0
445848005	B3HXP7
445848006	B3HXR2
445848007	B3HXT1
445848008	B3HXT3
445848009	B3HXT5
445848010	B3HXR7
445848011	B3HXT8
445848012	B3HXR8
445848013	B3HXT9
445848014	B3HXT0
445848015	B3HXT2
445848016	B3HXT4

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: 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.

Heather Shaffer

Heather Shaffer
Project Manager

Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL445848
Work Order #: 445848

Metals

Determination of Metals by ICP

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

Determination of Metals by ICP-MS

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

General Chemistry

Cyanide, Total

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

Cyanide, Chlorinated

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

Technical Information

Sample Re-analysis
Samples445848015 (B3HXT2) and 445848016 (B3HXT4) were re-analyzed due to CCV failure. The reanalysis data with passing instrument QC was reported.

Cyanide, Amenable to Chlorination

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

Cyanide, Free

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

Additional Comments
Total CN levels above the MDL for Free CN were detected in samples 445848001 (B3HMT9), 445848002 (B3HMV5), 445848003 (B3HXR1), 445848004 (B3HMV0), 445848005 (B3HXP7) and 445848006 (B3HXR2). Free CN was performed per SOP (GL-GC-E-073).

Cyanide, Free

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

Radiochemistry

I129LL_SEP_LEPS_GS: COMMON (low level)

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 445848011 (B3HXT8) was recounted due to poor detector resolution. The recount is being reported.

TC99_EIE_LSC: COMMON

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

Technical Information

Recounts
Samples 1203989891 (B3HMT9DUP), 445848001 (B3HMT9), 445848002 (B3HMV5), 445848003 (B3HXR1), 445848010 (B3HXR7), 445848011 (B3HXT8), 445848014 (B3HXT0) and 445848016 (B3HXT4) were recounted to verify sample results. Recounts are reported.

TRITIUM_DIST_LSC: COMMON

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

Miscellaneous Information

Additional Comments
The matrix spike, 1203991698 (B3HMT9MS), aliquot was 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 445848	F16-046-1621	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	REQUIRED TAT
Kevin Patterson CHPRC	SUMNER, LC	376-3922	SUMNER, LC	15 Days

SAMPLING LOCATION	PROJECT DESIGNATION	SAF NO.
289-T, Effluent Tank, Valve V20-Y80 C*	200W Pump & Treat - Treatment Plant Compliance Sampling - Water	F16-046

ORIGINAL

ICE CHEST NO.	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH	PURCHASE ORDER/CHARGE CODE	METHOD OF SHIPMENT
GWS-739	HNF-N-491 16/94	N/A	304235	FEDERAL EXPRESS

SHIPPED TO	OFFSITE PROPERTY NO.	BILL OF LADING/AIR BILL NO.
GEL Laboratories, LLC	9159	7800 2940 6752

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

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

SPECIAL HANDLING AND/OR STORAGE
N/A

PRESERVATION	HNO3 to pH <2	NaOH to pH >=12/Cool <=6C	None	None	HNO3 to pH <2
HOLDING TIME	6 Months	14 Days	6 Months	6 Months	6 Months
TYPE OF CONTAINER	G/P	aG	P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1	1
VOLUME	500mL	500mL	250mL	4L	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	906.0_TRITIUM_LSC: COMMON {Tritium};	I129LL_SEP_LEPS_GS: COMMON {Iodine-129};	TC99_EIE_LSC: COMMON {Technetium-99};

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B3HMT9	N/A	WATER	MAR 13 2018	0942	✓	✓	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 13 2018 1045 1400	Mike Esparza /CHPRC FEDEX	MAR 13 2018 1010
Mike Esparza /CHPRC	MAR 13 2018	Chakeris Tarplin GEL Laboratories	3/14/18 0900
Fed Ex			

SPECIAL INSTRUCTIONS
TRVL-18-085
(1) 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron}; 6020_METALS_ICPMS: COMMON {Aluminum, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Manganese, Nickel, Uranium, Zinc};
(2) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/27/2018 FSR ID = FSR58214 TRVL NUM = TRVL-18-085 A-6003-618 (REV 3)

3/27/2018

REV.0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445848	F16-046-1627	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	REQUIRED TAT
Kevin Patterson CHPRC	SUMNER, LC	376-3922	SUMNER, LC	15 Days

SAMPLING LOCATION	PROJECT DESIGNATION	SAF NO.	
289-T, Effluent Tank, Valve V20-Y80C* DUP	200W Pump & Treat - Treatment Plant Compliance Sampling - Water	F16-046	ORIGINAL

ICE CHEST NO.	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH	PURCHASE ORDER/CHARGE CODE	METHOD OF SHIPMENT
GW5-739	HNF-N-491 16/44	N/A	304235	FEDERAL EXPRESS

SHIPPED TO	OFFSITE PROPERTY NO.	BILL OF LADING/AIR BILL NO.
GEL Laboratories, LLC	9159	7800 2940 6792

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

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

SPECIAL HANDLING AND/OR STORAGE
N/A

PRESERVATION	HNO3 to pH <2	NaOH to pH >=12/Cool <=6C	None	None	HNO3 to pH <2
HOLDING TIME	6 Months	14 Days	6 Months	6 Months	6 Months
TYPE OF CONTAINER	G/P	aG	P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1	1
VOLUME	500mL	500mL	250mL	4L	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	906.0_TRITIUM_LSC: COMMON {Tritium};	I129LL_SEP_LEPS_GS: COMMON {Iodine-129};	TC99_EIE_LSC: COMMON {Technetium-99};

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B3HMV5	N/A	WATER	MAR 13 2018	0942	✓	✓	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 13 2018 1510	Mike Esparza /CHPRC	MAR 13 2018 1510
Mike Esparza /CHPRC	MAR 13 2018 1400	FEDEX	
Fed Ex		Chakeris Tarplin GEL Laboratories	3/14/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-085
(1) 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron}; 6020_METALS_ICPMS: COMMON {Aluminum, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Manganese, Nickel, Uranium, Zinc};
(2) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/27/2018 FSR ID = FSR58215 TRVL NUM = TRVL-18-085 A-6003-618 (REV 3)

3/27/2018

REV.0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445 848	F16-046-1632	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	REQUIRED TAT
Kevin Patterson CHPRC	SUMNER, LC	376-3922	SUMNER, LC	15 Days

SAMPLING LOCATION	PROJECT DESIGNATION	SAF NO.
289-TA, Pre UIX Resin Column, Valve V25-Y11A1	200W Pump & Treat - Treatment Plant Compliance Sampling - Water	F16-046

ORIGINAL

ICE CHEST NO.	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH	PURCHASE ORDER/CHARGE CODE	METHOD OF SHIPMENT
GW5-675	HNF-N-491 16/94	N/A	304235	FEDERAL EXPRESS

SHIPPED TO	OFFSITE PROPERTY NO.	BILL OF LADING/AIR BILL NO.
GEL Laboratories, LLC	9157	7800 2621 5564

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

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

SPECIAL HANDLING AND/OR STORAGE
N/A

PRESERVATION	HNO3 to pH <2	NaOH to pH >=12/Cool <=6C	None	None	HNO3 to pH <2
HOLDING TIME	6 Months	14 Days	6 Months	6 Months	6 Months
TYPE OF CONTAINER	G/P	aG	P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1	1
VOLUME	500mL	500mL	250mL	4L	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	906.0_TRITIUM_LSC: COMMON {Tritium};	I129LL_SEP_LEPS_GS: COMMON {Iodine-129};	TC99_EIE_LSC: COMMON {Technetium-99};

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B3HXR1	N/A	WATER	MAR 13 2018	0802	✓	✓	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 13 2018 0530	Mike Esparza /CHPRC FEDEX	MAR 13 2018 0930
Mike Esparza /CHPRC	MAR 13 2018 1400		
Fed Ex		Chakeris Tarpin GEL Laboratories	3/14/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-085
(1) 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron}; 6020_METALS_ICPMS: COMMON {Aluminum, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Manganese, Nickel, Uranium, Zinc};
(2) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/27/2018 FSR ID = FSR58216 TRVL NUM = TRVL-18-085 A-6003-618 (REV 3)

3/27/2018

REV.0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445848			F16-046-1622	PAGE 1 OF 1
COLLECTOR: Kevin Patterson CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC		REQUIRED TAT 15 Days
SAMPLING LOCATION: 289-T, Effluent Tank, Valve V20-Y80C*	PROJECT DESIGNATION: 200W Pump & Treat - Treatment Plant Compliance Sampling - Water		SAF NO.: F16-046	ORIGINAL	
ICE CHEST NO.: GWS-739	FIELD LOGBOOK NO.: HNF-N-491 16/94	ACTUAL SAMPLE DEPTH: N/A	PURCHASE ORDER/CHARGE CODE: 304235	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9159		BILL OF LADING/AIR BILL NO.: 7800 2940 6792		

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

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

SPECIAL HANDLING AND/OR STORAGE
N/A

PRESERVATION	HNO3 to pH <2	NaOH to pH >=12/Cool <=6C
HOLDING TIME	6 Months	14 Days
TYPE OF CONTAINER	G/P	aG
NO. OF CONTAINER(S)	1	1
VOLUME	500mL	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B3HMV0	Yes	WATER	MAR 13 2018	0942	✓	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 13 2018 1010	Mike Esparza /CHPRC	MAR 13 2018 1010
Mike Esparza /CHPRC	MAR 13 2018 1400	FEDEX	
Fed Ex		Chakeris Tarplin GEL Laboratories	3/14/18 0700

SPECIAL INSTRUCTIONS
TRVL-18-085; Filtering shall be performed by SGRP Field Sampling Services using a (0.45µm) filter while in the field.
(1) 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron}; 6020_METALS_ICPMS: COMMON {Aluminum, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Manganese, Nickel, Uranium, Zinc};
(2) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/27/2018 FSR ID = FSR58214 TRVL NUM = TRVL-18-085 A-6003-618 (REV 3)

3/27/2018

REV.0

CH2MHill Plateau Remediation Company	445848 CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 68910		F16-046-1628	PAGE 1 OF 1
COLLECTOR Kevin Patterson CHPRC	**COMPANY CONTACT** SUMNER, LC	**TELEPHONE NO.** 376-3922	**PROJECT COORDINATOR** SUMNER, LC	**REQUIRED TAT** 15 Days
SAMPLING LOCATION 289-T, Effluent Tank, Valve V20-Y80 C* DUP	**PROJECT DESIGNATION** 200W Pump & Treat - Treatment Plant Compliance Sampling - Water		**SAF NO.** F16-046	ORIGINAL
ICE CHEST NO. GWS-739	**FIELD LOGBOOK NO.** HNF-N-491 16/94	**ACTUAL SAMPLE DEPTH** N/A	**PURCHASE ORDER/CHARGE CODE** 304235	**METHOD OF SHIPMENT** FEDERAL EXPRESS
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 9159		**BILL OF LADING/AIR BILL NO.** 7800 2940 6792	

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

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

SPECIAL HANDLING AND/OR STORAGE
N/A

PRESERVATION	HNO3 to pH <2	NaOH to pH >=12/Cool <=6C
HOLDING TIME	6 Months	14 Days
TYPE OF CONTAINER	G/P	aG
NO. OF CONTAINER(S)	1	1
VOLUME	500mL	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B3HXP7	Yes	WATER	MAR 13 2018	0942	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 13 2018 1010	Mike Esparza /CHPRC	MAR 13 2018 1010
Mike Esparza /CHPRC	MAR 13 2018 1400	FEDEX	
Fed Ex		Chakeris Tarplin/ GEL Laboratories	3/14/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-085; Filtering shall be performed by SGRP Field Sampling Services using a (0.45µm) filter while in the field.
(1) 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron}; 6020_METALS_ICPMS: COMMON {Aluminum, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Manganese, Nickel, Uranium, Zinc};
(2) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/27/2018 FSR ID = FSR58215 TRVL NUM = TRVL-18-085 A-6003-618 (REV 3)

3/27/2018

REV.0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445848			F16-046-1633	PAGE 1 OF 1
COLLECTOR: Kevin Patterson CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT 15 Days	
SAMPLING LOCATION: 289-TA, Pre UIX Resin Column, Valve V25-Y11A1	PROJECT DESIGNATION: 200W Pump & Treat - Treatment Plant Compliance Sampling - Water		SAF NO.: F16-046	ORIGINAL	
ICE CHEST NO.: GWS-675	FIELD LOGBOOK NO.: HNF-N-491 16/94	ACTUAL SAMPLE DEPTH: N/A	PURCHASE ORDER/CHARGE CODE: 304235	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9157		BILL OF LADING/AIR BILL NO.: 7800 2621 5564		

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

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

SPECIAL HANDLING AND/OR STORAGE
N/A

PRESERVATION	HNO3 to pH <2	NaOH to pH >=12/Cool <=6C
HOLDING TIME	6 Months	14 Days
TYPE OF CONTAINER	G/P	aG
NO. OF CONTAINER(S)	1	1
VOLUME	500mL	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B3HXR2	Yes	WATER	MAR 13 2018	0802	✓	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 13 2018 0803	Mike Esparza /CHPRG FEDEX	MAR 13 2018 0900
Mike Esparza /CHPRC Fed Ex	MAR 13 2018 1400	Chakeris Tarpley GEL Laboratories	3/14/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-085; Filtering shall be performed by SGRP Field Sampling Services using a (0.45µm) filter while in the field.
(1) 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron}; 6020_METALS_ICPMS: COMMON {Aluminum, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Manganese, Nickel, Uranium, Zinc};
(2) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/27/2018 FSR ID = FSR58216 TRVL NUM = TRVL-18-085 A-6003-618 (REV 3)

3/27/2018

REV.0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445848			F16-046-1642	PAGE 1 OF 1
COLLECTOR: Kevin Patterson CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC		REQUIRED TAT 15 Days
SAMPLING LOCATION: 289-TA, Post UIX Resin Column C1, Valve V03-Y11A1	PROJECT DESIGNATION: 200W Pump & Treat - Treatment Plant Compliance Sampling - Water		SAF NO.: F16-046		ORIGINAL
ICE CHEST NO.: GWS-675	FIELD LOGBOOK NO.: HNF-N-491 16/94	ACTUAL SAMPLE DEPTH: N/A	PURCHASE ORDER/CHARGE CODE: 304235		METHOD OF SHIPMENT: FEDERAL EXPRESS
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9157		BILL OF LADING/AIR BILL NO.: 7800 2621 5564		

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

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

SPECIAL HANDLING AND/OR STORAGE
N/A

PRESERVATION	HNO3 to pH <2	NaOH to pH >=12/Cool <=6C
HOLDING TIME	6 Months	14 Days
TYPE OF CONTAINER	G/P	aG
NO. OF CONTAINER(S)	1	1
VOLUME	500mL	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B3HXT1	Yes	WATER	MAR 13 2018	0812	✓	✓

CHAIN OF POSSESSION: RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES: RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 13 2018 0900	Mike Esparza /CHPRC	MAR 13 2018 0900
Mike Esparza /CHPRC	MAR 13 2018 1400	FEDEX	
Fed Ex		Chakeris Taylor GEL Labor...	3/14/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-085; Filtering shall be performed by SGRP Field Sampling Services using a (0.45µm) filter while in the field.
(1) 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron}; 6020_METALS_ICPMS: COMMON {Aluminum, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Manganese, Nickel, Uranium, Zinc};
(2) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/27/2018 FSR ID = FSR58218 TRVL NUM = TRVL-18-085 A-6003-618 (REV 3)

3/27/2018

REV.0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445848	F16-046-1644	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	REQUIRED TAT
Kevin Patterson CHPRC	SUMNER, LC	376-3922	SUMNER, LC	15 Days

SAMPLING LOCATION	PROJECT DESIGNATION	SAF NO.
289-TA, Post UIX Resin Column C2, Valve V03-Y11A2	200W Pump & Treat - Treatment Plant Compliance Sampling - Water	F16-046

ORIGINAL

ICE CHEST NO.	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH	PURCHASE ORDER/CHARGE CODE	METHOD OF SHIPMENT
GWS-675	HNF-N-491 16/94	N/A	304235	FEDERAL EXPRESS

SHIPPED TO	OFFSITE PROPERTY NO.	BILL OF LADING/AIR BILL NO.
GEL Laboratories, LLC	9157	7800 2621 5564

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

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

SPECIAL HANDLING AND/OR STORAGE
N/A

PRESERVATION	HNO3 to pH <2	NaOH to pH >=12/Cool <=6C
HOLDING TIME	6 Months	14 Days
TYPE OF CONTAINER	G/P	aG
NO. OF CONTAINER(S)	1	1
VOLUME	500mL	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B3HXT3	Yes	WATER	MAR 13 2018	0817	✓	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 13 2018 0903	Mike Esparza /CHPRC	MAR 13 2018 0903
Mike Esparza /CHPRC Fed Ex	MAR 13 2018	FEDEX	
		Chakeris Taylor GEL Laboratories	3/14/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-085; Filtering shall be performed by SGRP Field Sampling Services using a (0.45µm) filter while in the field.
(1) 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron}; 6020_METALS_ICPMS: COMMON {Aluminum, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Manganese, Nickel, Uranium, Zinc};
(2) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/27/2018 FSR ID = FSR58219 TRVL NUM = TRVL-18-085 A-6003-618 (REV 3)

3/27/2018

REV.0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445848	F16-046-1646	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	REQUIRED TAT
Kevin Patterson CHPRC	SUMNER, LC	376-3922	SUMNER, LC	15 Days

SAMPLING LOCATION	PROJECT DESIGNATION	SAF NO.
289-TA, Post UIX Resin Column C3, Valve V03-Y11A3	200W Pump & Treat - Treatment Plant Compliance Sampling - Water	F16-046

ORIGINAL

ICE CHEST NO.	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH	PURCHASE ORDER/CHARGE CODE	METHOD OF SHIPMENT
GWS-675	HNF-N-49116/99	N/A	304235	FEDERAL EXPRESS

SHIPPED TO	OFFSITE PROPERTY NO.	BILL OF LADING/AIR BILL NO.
GEL Laboratories, LLC	9157	7800 2621 5564

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

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

SPECIAL HANDLING AND/OR STORAGE
N/A

PRESERVATION	HNO3 to pH <2	NaOH to pH >=12/Cool <=6C
HOLDING TIME	6 Months	14 Days
TYPE OF CONTAINER	G/P	aG
NO. OF CONTAINER(S)	1	1
VOLUME	500mL	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B3HXT5	Yes	WATER	MAR 13 2018	0823	✓	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 13 2018 0500	Mike Esparza /CHPRC	MAR 13 2018 0500
Mike Esparza /CHPRC Fed Ex	MAR 13 2018 1400	FEDEX	
		Chakeris Tarplin GEL Laboratories	3/14/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-085; Filtering shall be performed by SGRP Field Sampling Services using a (0.45µm) filter while in the field.
(1) 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron};
6020_METALS_ICPMS: COMMON {Aluminum, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Manganese, Nickel, Uranium, Zinc};
(2) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/27/2018 FSR ID = FSR58220 TRVL NUM = TRVL-18-085 A-6003-618 (REV 3)

3/27/2018

REV.0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445848	F16-046-1638	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	REQUIRED TAT
Kevin Patterson CHPRC	SUMNER, LC	376-3922	SUMNER, LC	15 Days

SAMPLING LOCATION	PROJECT DESIGNATION	SAF NO.
289-TA, Pre Tc99IX Resin Tanks, Valve V11-Y20_* A	200W Pump & Treat - Treatment Plant Compliance Sampling - Water	F16-046

ORIGINAL

ICE CHEST NO.	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH	PURCHASE ORDER/CHARGE CODE	METHOD OF SHIPMENT
GWS-739	HNF-N-491 16/94	N/A	304235	FEDERAL EXPRESS

SHIPPED TO	OFFSITE PROPERTY NO.	BILL OF LADING/AIR BILL NO.
GEL Laboratories, LLC	9159	7800 2940 6792

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

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

SPECIAL HANDLING AND/OR STORAGE
N/A

PRESERVATION	HNO3 to pH <2	None	None	HNO3 to pH <2
HOLDING TIME	6 Months	6 Months	6 Months	6 Months
TYPE OF CONTAINER	G/P	P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	500mL	250mL	4L	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	906.0_TRITIUM_LSC: COMMON {Tritium};	I129LL_SEP_LEPS_GS: COMMON {Iodine-129};	TC99_EIE_LSC: COMMON {Technetium-99};

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B3HXR7	N/A	WATER	MAR 13 2018	0915	✓	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 13 2018 1010	Mike Esparza /CHPRC	MAR 13 2018 1010
Mike Esparza /CHPRC	MAR 13 2018 1400	FEDEX	
Fed Ex		Chakeris Tardio GEL Laboratories	3/14/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-085
(1) 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron}; 6020_METALS_ICPMS: COMMON {Aluminum, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Manganese, Nickel, Uranium, Zinc};

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/27/2018 FSR ID = FSR58213 TRVL NUM = TRVL-18-085 A-6003-618 (REV 3)

3/27/2018

REV.0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445848	F16-046-1649	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	REQUIRED TAT
Kevin Patterson CHPRC	SUMNER, LC	376-3922	SUMNER, LC	15 Days

SAMPLING LOCATION	PROJECT DESIGNATION	SAF NO.
289-TA, Post Tc99IX Resin Tanks, Valve V06-Y22	200W Pump & Treat - Treatment Plant Compliance Sampling - Water	F16-046

ORIGINAL

ICE CHEST NO.	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH	PURCHASE ORDER/CHARGE CODE	METHOD OF SHIPMENT
6WS-675	HNF-N-491 16/94	N/A	304235	FEDERAL EXPRESS

SHIPPED TO	OFFSITE PROPERTY NO.	BILL OF LADING/AIR BILL NO.
GEL Laboratories, LLC	9157	7800 2621 5564

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

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

SPECIAL HANDLING AND/OR STORAGE
N/A

PRESERVATION	HNO3 to pH <2	None	None	HNO3 to pH <2
HOLDING TIME	6 Months	6 Months	6 Months	6 Months
TYPE OF CONTAINER	G/P	P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	500mL	250mL	4L	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	906.0_TRITIUM_LSC: COMMON {Tritium};	I129LL_SEP_LEPS_GS: COMMON {Iodine-129};	TC99_EIE_LSC: COMMON {Technetium-99};

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B3HXT8	N/A	WATER	MAR 13 2018	0828	✓	✓	✓	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 13 2018 0900	Mike Esparza /CHPRC FEDEX	MAR 13 2018 0900
Mike Esparza /CHPRC	MAR 13 2018 1400	Chakeris Tarplin GEL Laboratories	3/14/18 0900
Fed Ex			

SPECIAL INSTRUCTIONS
TRVL-18-085
(1) 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron}; 6020_METALS_ICPMS: COMMON {Aluminum, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Manganese, Nickel, Uranium, Zinc};

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/27/2018 FSR ID = FSR58221 TRVL NUM = TRVL-18-085 A-6003-618 (REV 3)

3/27/2018

REV.0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445848			F16-046-1639	PAGE 1 OF 1
COLLECTOR: Kevin Patterson CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT: 15 Days	
SAMPLING LOCATION: 289-TA, Pre Tc99IX Resin Tanks, Valve V11-Y20_* A	PROJECT DESIGNATION: 200W Pump & Treat - Treatment Plant Compliance Sampling - Water		SAF NO.: F16-046	ORIGINAL	
ICE CHEST NO.: GWS-739	FIELD LOGBOOK NO.: HNF-N-491 16/94	ACTUAL SAMPLE DEPTH: N/A	PURCHASE ORDER/CHARGE CODE: 304235	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9159		BILL OF LADING/AIR BILL NO.: 7800 2940 6792		

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

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

SPECIAL HANDLING AND/OR STORAGE
N/A

PRESERVATION	HNO3 to pH <2
HOLDING TIME	6 Months
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B3HXR8	Yes	WATER	MAR 13 2018	0915	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 13 2018 1010	Mike Esparza /CHPRC	MAR 13 2018 1010
Mike Esparza /CHPRC Fed Ex	MAR 13 2018 1400	FEDEX	
		Chakeris Tarplin/ GEL Laboratories	3/14/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-085; Filtering shall be performed by SGRP Field Sampling Services using a (0.45µm) filter while in the field.
(1) 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron}; 6020_METALS_ICPMS: COMMON {Aluminum, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Manganese, Nickel, Uranium, Zinc};

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/27/2018 FSR ID = FSR58213 TRVL NUM = TRVL-18-085 A-6003-618 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445848			F16-046-1650	PAGE 1 OF 1
COLLECTOR Kevin Patterson CHPRC	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR SUMNER, LC	REQUIRED TAT 15 Days	
SAMPLING LOCATION 289-TA, Post Tc99IX Resin Tanks, Valve V06-Y22	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Compliance Sampling - Water		SAF NO. F16-046	ORIGINAL	
ICE CHEST NO. GWS-075	FIELD LOGBOOK NO. HNF-N-491 16/94	ACTUAL SAMPLE DEPTH N/A	PURCHASE ORDER/CHARGE CODE 304235	METHOD OF SHIPMENT FEDERAL EXPRESS	
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 9157		BILL OF LADING/AIR BILL NO. 7800 2621 5564		

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	HNO3 to pH <2
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	HOLDING TIME	6 Months
		TYPE OF CONTAINER	G/P
		NO. OF CONTAINER(S)	1
		VOLUME	500mL
	SPECIAL HANDLING AND/OR STORAGE N/A	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B3HXT9	Yes	WATER	MAR 13 2018	0828	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 13 2018 0900	Mike Esparza /CHPRC FEDEX	MAR 13 2018 0900
Mike Esparza /CHPRC	MAR 13 2018 1400	Chakeris Tarplin GEL Laboratories	3/14/18 0900
Fed Ex			

SPECIAL INSTRUCTIONS

TRVL-18-085; Filtering shall be performed by SGRP Field Sampling Services using a (0.45µm) filter while in the field.
(1) 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron}; 6020_METALS_ICPMS: COMMON {Aluminum, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Manganese, Nickel, Uranium, Zinc};

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/27/2018 FSR ID = FSR58221 TRVL NUM = TRVL-18-085 A-6003-618 (REV 3)

3/27/2018

REV.0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445848			F16-046-1641	PAGE 1 OF 1
COLLECTOR Kevin Patterson CHPRC	**COMPANY CONTACT** SUMNER, LC	**TELEPHONE NO.** 376-3922	**PROJECT COORDINATOR** SUMNER, LC	**REQUIRED TAT** 15 Days	
SAMPLING LOCATION 289-TA, Post UIX Resin Column C1, Valve V03-Y11A1	**PROJECT DESIGNATION** 200W Pump & Treat - Treatment Plant Compliance Sampling - Water		**SAF NO.** F16-046	ORIGINAL	
ICE CHEST NO. GWS-C75	**FIELD LOGBOOK NO.** HNF-N-491 16/94	**ACTUAL SAMPLE DEPTH** N/A	**PURCHASE ORDER/CHARGE CODE** 304235	**METHOD OF SHIPMENT** FEDERAL EXPRESS	
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 9157		**BILL OF LADING/AIR BILL NO.** 7800-2621-5564		

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

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

SPECIAL HANDLING AND/OR STORAGE
N/A

PRESERVATION	HNO3 to pH <2	NaOH to pH >=12/Cool <=6C	HNO3 to pH <2
HOLDING TIME	6 Months	14 Days	6 Months
TYPE OF CONTAINER	G/P	aG	G/P
NO. OF CONTAINER(S)	1	1	1
VOLUME	500mL	500mL	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	TC99_EIE_LSC: COMMON {Technetium-99};

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B3HXT0	N/A	WATER	MAR 13 2018	0812	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 13 2018 0900	Mike Esparza /CHPRC	MAR 13 2018 0900
Mike Esparza /CHPRC Fed Ex	MAR 13 2018 1600	FEDEX	
		Chakeris Tarplin/ GEL Laboratories	3/14/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-085
(1) 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron}; 6020_METALS_ICPMS: COMMON {Aluminum, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Manganese, Nickel, Uranium, Zinc};
(2) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/27/2018 FSR ID = FSR58218 TRVL NUM = TRVL-18-085 A-6003-618 (REV 3)

3/27/2018

REV.0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445848			F16-046-1643	PAGE 1 OF 1
COLLECTOR: Kevin Patterson CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT 15 Days	
SAMPLING LOCATION: 289-TA, Post UIX Resin Column C2, Valve V03-Y11A2	PROJECT DESIGNATION: 200W Pump & Treat - Treatment Plant Compliance Sampling - Water		SAF NO.: F16-046	ORIGINAL	
ICE CHEST NO.: GWS-675	FIELD LOGBOOK NO.: HNF-N-491 16/97	ACTUAL SAMPLE DEPTH: N/A	PURCHASE ORDER/CHARGE CODE: 304235	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9157		BILL OF LADING/AIR BILL NO.: 7800 2621 5564		

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

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

SPECIAL HANDLING AND/OR STORAGE
N/A

PRESERVATION	HNO3 to pH <2	NaOH to pH >=12/Cool <=6C	HNO3 to pH <2
HOLDING TIME	6 Months	14 Days	6 Months
TYPE OF CONTAINER	G/P	aG	G/P
NO. OF CONTAINER(S)	1	1	1
VOLUME	500mL	500mL	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	TC99_EIE_LSC: COMMON {Technetium-99};

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B3HXT2	N/A	WATER	MAR 13 2018	0817	✓	✓	✓

CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 13 2018 0900	Mike Esparza /CHPRC	MAR 13 2018 0900
Mike Esparza /CHPRC	MAR 13 2018 1400	FEDEX	
Fed Ex		Chakeris Tarplin GEL Laboratories	3/14/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-085
(1) 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron}; 6020_METALS_ICPMS: COMMON {Aluminum, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Manganese, Nickel, Uranium, Zinc};
(2) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/27/2018 FSR ID = FSR58219 TRVL NUM = TRVL-18-085 A-6003-618 (REV 3)

3/27/2018

REV.0

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 445848			F16-046-1645	PAGE 1 OF 1
COLLECTOR: Kevin Patterson CHPRC	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC	REQUIRED TAT 15 Days	
SAMPLING LOCATION: 289-TA, Post UIX Resin Column C3, Valve V03-Y11A3	PROJECT DESIGNATION: 200W Pump & Treat - Treatment Plant Compliance Sampling - Water		SAF NO.: F16-046	ORIGINAL	
ICE CHEST NO.: 6WS-675	FIELD LOGBOOK NO.: HNF-N-491 16/99	ACTUAL SAMPLE DEPTH: N/A	PURCHASE ORDER/CHARGE CODE: 304235	METHOD OF SHIPMENT: FEDERAL EXPRESS	
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 9157		BILL OF LADING/AIR BILL NO.: 7800 2621 5564		

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

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

SPECIAL HANDLING AND/OR STORAGE
N/A

PRESERVATION	HNO3 to pH <2	NaOH to pH >=12/Cool <=6C	HNO3 to pH <2
HOLDING TIME	6 Months	14 Days	6 Months
TYPE OF CONTAINER	G/P	aG	G/P
NO. OF CONTAINER(S)	1	1	1
VOLUME	500mL	500mL	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	TC99_EIE_LSC: COMMON {Technetium-99};

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B3HXT4	N/A	WATER	MAR 13 2018	0823	✓	✓	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Kevin Patterson CHPRC	MAR 13 2018 0823	Mike Esparza /CHPRC	MAR 13 2018 0823
Mike Esparza /CHPRC Fed Ex	MAR 13 2018 1400	FEDEX	
		Chakeris Tarplin GEL Laboratories	3/14/18 0900

SPECIAL INSTRUCTIONS
TRVL-18-085
(1) 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium}; 6010_METALS_ICP: COMMON (Add-on) {Boron}; 6020_METALS_ICPMS: COMMON {Aluminum, Chromium, Cobalt, Copper, Molybdenum, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Manganese, Nickel, Uranium, Zinc};
(2) 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON; 9014_CN (FREE): COMMON;

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/27/2018 FSR ID = FSR58220 TRVL NUM = TRVL-18-085 A-6003-618 (REV 3)

3/27/2018

REV.0

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

HS

Client: CPRC	SDG/AR/COC/Work Order: 445848
Received By: C. Tarplin	Date Received: 3-14-18
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 7800 2940 7468 7800 2940 6792 7800 2100 5522 7800 2297 6320 7800 2621 5564

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?		X	Hazard Class Shipped: UN#:
COC/Samples marked or classified as radioactive?	X		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?		X	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?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	X			
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	X			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?	X			**Temperature Device Serial #:** IR4-17 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	X			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			X	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?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11	Number of containers received match number indicated on COC?	X			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			X	
13	COC form is properly signed in relinquished/received sections?	X			

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials ASP Date 3/15/18 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: 27−MAR−18

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

Laboratory Certifications

List of current GEL Certifications as of 27 March 2018

State	Certification
Alaska	17−018
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	LA180011
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122018−1
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
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−18−13
Utah NELAP	SC000122018−26
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL445848
Work Order #: 445848

Product: **Determination of Metals by ICP**
Analytical Method: SW846 3005A/6010D
Analytical Procedure: GL-MA-E-013 REV# 30
Analytical Batch: 1747138

Product: **Determination of Metals by ICP-MS**
Analytical Method: SW846 3005A/6020B
Analytical Procedure: GL-MA-E-014 REV# 32
Analytical Batch: 1747142

Preparation Method: SW846 3005A
Preparation Procedure: GL-MA-E-006 REV# 14
Preparation Batches: 1747137 and 1747141

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

GEL Sample ID#	Client Sample Identification
445848001	B3HMT9
445848002	B3HMV5
445848003	B3HXR1
445848004	B3HMV0
445848005	B3HXP7
445848006	B3HXR2
445848007	B3HXT1
445848008	B3HXT3
445848009	B3HXT5
445848010	B3HXR7
445848011	B3HXT8
445848012	B3HXR8
445848013	B3HXT9
445848014	B3HXT0
445848015	B3HXT2
445848016	B3HXT4
1203989595	Method Blank (MB)**ICP**
1203989596	Laboratory Control Sample (LCS)
1203989599	445848001(B3HMT9L) Serial Dilution (SD)
1203989597	445848001(B3HMT9S) Matrix Spike (MS)
1203989598	445848001(B3HMT9SD) Matrix Spike Duplicate (MSD)
1203989605	Method Blank (MB)**ICP-MS**
1203989606	Laboratory Control Sample (LCS)
1203989609	445848001(B3HMT9L) Serial Dilution (SD)
1203989607	445848001(B3HMT9S) Matrix Spike (MS)
1203989608	445848001(B3HMT9SD) 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

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

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: GEL445848 GEL Work Order: 445848

The Qualifiers in this report are defined as follows:

* Duplicate analysis not within control limits

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

D Results are reported from a diluted aliquot of sample.

N Spike Sample recovery is outside control limits.

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

Review/Validation

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

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

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

Date: 26 MAR 2018 **Title: Data Validator**

Sample Data Summary

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445848 **CONTRACT:** CPRC0F16046 **METHOD TYPE:** SW846

SAMPLE ID: 445848001 **BASIS:** As Received **DATE COLLECTED** 13−MAR−18

CLIENT ID: B3HMT9 **LEVEL:** Low **DATE RECEIVED** 14−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/21/18 08:35	180320−2	1747142
7440−42−8	Boron	28.7	ug/L	B	15	50	50	1	P	HSC	03/22/18 14:45	032218−1	1747138
7440−70−2	Calcium	65000	ug/L		50	200	200	1	P	HSC	03/22/18 14:45	032218−1	1747138
7440−47−3	Chromium	3	ug/L	U	3	10	10	1	MS	BAJ	03/21/18 08:35	180320−2	1747142
7440−48−4	Cobalt	15.9	ug/L		0.3	1	1	1	MS	BAJ	03/21/18 08:35	180320−2	1747142
7440−50−8	Copper	7.83	ug/L		0.3	1	1	1	MS	BAJ	03/21/18 08:35	180320−2	1747142
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	HSC	03/22/18 14:45	032218−1	1747138
7439−95−4	Magnesium	22000	ug/L		110	300	300	1	P	HSC	03/22/18 14:45	032218−1	1747138
7439−96−5	Manganese	68.9	ug/L		1	5	5	1	MS	BAJ	03/21/18 11:13	180321−3	1747142
7439−98−7	Molybdenum	29.3	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/21/18 08:35	180320−2	1747142
7440−02−0	Nickel	9.67	ug/L		0.6	2	2	1	MS	BAJ	03/21/18 08:35	180320−2	1747142
7440−09−7	Potassium	5340	ug/L		50	150	150	1	P	HSC	03/22/18 14:45	032218−1	1747138
7782−49−2	Selenium	3.76	ug/L	B	2	5	5	1	MS	BAJ	03/21/18 08:35	180320−2	1747142
7440−23−5	Sodium	36000	ug/L		100	300	300	1	P	HSC	03/22/18 14:45	032218−1	1747138
7440−61−1	Uranium	0.887	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/21/18 08:35	180320−2	1747142
7440−66−6	Zinc	3.62	ug/L	B	3.3	10	10	1	MS	BAJ	03/21/18 08:35	180320−2	1747142

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1747138	1747137	SW846 3005A	50	mL	50	mL	03/14/18	JXM8
1747142	1747141	SW846 3005A	50	mL	50	mL	03/14/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445848 **CONTRACT:** CPRC0F16046 **METHOD TYPE:** SW846

SAMPLE ID: 445848002 **BASIS:** As Received **DATE COLLECTED** 13−MAR−18

CLIENT ID: B3HMV5 **LEVEL:** Low **DATE RECEIVED** 14−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/21/18 08:51	180320−2	1747142
7440−42−8	Boron	29.5	ug/L	B	15	50	50	1	P	HSC	03/22/18 14:55	032218−1	1747138
7440−70−2	Calcium	66600	ug/L		50	200	200	1	P	HSC	03/22/18 14:55	032218−1	1747138
7440−47−3	Chromium	3	ug/L	U	3	10	10	1	MS	BAJ	03/21/18 08:51	180320−2	1747142
7440−48−4	Cobalt	15.2	ug/L		0.3	1	1	1	MS	BAJ	03/21/18 08:51	180320−2	1747142
7440−50−8	Copper	7.55	ug/L		0.3	1	1	1	MS	BAJ	03/21/18 08:51	180320−2	1747142
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	HSC	03/22/18 14:55	032218−1	1747138
7439−95−4	Magnesium	22600	ug/L		110	300	300	1	P	HSC	03/22/18 14:55	032218−1	1747138
7439−96−5	Manganese	67.7	ug/L		1	5	5	1	MS	BAJ	03/21/18 11:19	180321−3	1747142
7439−98−7	Molybdenum	28.7	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/21/18 08:51	180320−2	1747142
7440−02−0	Nickel	9.83	ug/L		0.6	2	2	1	MS	BAJ	03/21/18 08:51	180320−2	1747142
7440−09−7	Potassium	5470	ug/L		50	150	150	1	P	HSC	03/22/18 14:55	032218−1	1747138
7782−49−2	Selenium	3.41	ug/L	B	2	5	5	1	MS	BAJ	03/21/18 08:51	180320−2	1747142
7440−23−5	Sodium	37700	ug/L		100	300	300	1	P	HSC	03/22/18 14:55	032218−1	1747138
7440−61−1	Uranium	0.869	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/21/18 08:51	180320−2	1747142
7440−66−6	Zinc	3.31	ug/L	B	3.3	10	10	1	MS	BAJ	03/21/18 08:51	180320−2	1747142

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1747138	1747137	SW846 3005A	50	mL	50	mL	03/14/18	JXM8
1747142	1747141	SW846 3005A	50	mL	50	mL	03/14/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445848 **CONTRACT:** CPRC0F16046 **METHOD TYPE:** SW846

SAMPLE ID: 445848003 **BASIS:** As Received **DATE COLLECTED** 13−MAR−18

CLIENT ID: B3HXR1 **LEVEL:** Low **DATE RECEIVED** 14−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/21/18 09:01	180320−2	1747142
7440−42−8	Boron	15	ug/L	U	15	50	50	1	P	HSC	03/22/18 15:03	032218−1	1747138
7440−70−2	Calcium	62500	ug/L		50	200	200	1	P	HSC	03/22/18 15:03	032218−1	1747138
7440−47−3	Chromium	5.17	ug/L	B	3	10	10	1	MS	BAJ	03/21/18 09:01	180320−2	1747142
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/21/18 09:01	180320−2	1747142
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/21/18 09:01	180320−2	1747142
7439−89−6	Iron	40.4	ug/L	B	30	100	100	1	P	HSC	03/22/18 15:03	032218−1	1747138
7439−95−4	Magnesium	18800	ug/L		110	300	300	1	P	HSC	03/22/18 15:03	032218−1	1747138
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/21/18 11:24	180321−3	1747142
7439−98−7	Molybdenum	6.31	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/21/18 09:01	180320−2	1747142
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/21/18 09:01	180320−2	1747142
7440−09−7	Potassium	6730	ug/L		50	150	150	1	P	HSC	03/22/18 15:03	032218−1	1747138
7782−49−2	Selenium	4.71	ug/L	B	2	5	5	1	MS	BAJ	03/21/18 09:01	180320−2	1747142
7440−23−5	Sodium	48300	ug/L		100	300	300	1	P	HSC	03/22/18 15:03	032218−1	1747138
7440−61−1	Uranium	239	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/21/18 09:01	180320−2	1747142
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/21/18 09:01	180320−2	1747142

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1747138	1747137	SW846 3005A	50	mL	50	mL	03/14/18	JXM8
1747142	1747141	SW846 3005A	50	mL	50	mL	03/14/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445848 **CONTRACT:** CPRC0F16046 **METHOD TYPE:** SW846

SAMPLE ID: 445848004 **BASIS:** As Received **DATE COLLECTED** 13−MAR−18

CLIENT ID: B3HMV0 **LEVEL:** Low **DATE RECEIVED** 14−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/21/18 09:04	180320−2	1747142
7440−42−8	Boron	29.5	ug/L	B	15	50	50	1	P	HSC	03/22/18 15:06	032218−1	1747138
7440−70−2	Calcium	64800	ug/L		50	200	200	1	P	HSC	03/22/18 15:06	032218−1	1747138
7440−47−3	Chromium	3	ug/L	U	3	10	10	1	MS	BAJ	03/21/18 09:04	180320−2	1747142
7440−48−4	Cobalt	13.8	ug/L		0.3	1	1	1	MS	BAJ	03/21/18 09:04	180320−2	1747142
7440−50−8	Copper	7.99	ug/L		0.3	1	1	1	MS	BAJ	03/21/18 09:04	180320−2	1747142
7439−89−6	Iron	172	ug/L		30	100	100	1	P	HSC	03/22/18 15:06	032218−1	1747138
7439−95−4	Magnesium	21800	ug/L		110	300	300	1	P	HSC	03/22/18 15:06	032218−1	1747138
7439−96−5	Manganese	57.6	ug/L		1	5	5	1	MS	BAJ	03/21/18 11:25	180321−3	1747142
7439−98−7	Molybdenum	28.9	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/21/18 09:04	180320−2	1747142
7440−02−0	Nickel	9.66	ug/L		0.6	2	2	1	MS	BAJ	03/21/18 09:04	180320−2	1747142
7440−09−7	Potassium	5590	ug/L		50	150	150	1	P	HSC	03/22/18 15:06	032218−1	1747138
7782−49−2	Selenium	3.21	ug/L	B	2	5	5	1	MS	BAJ	03/21/18 09:04	180320−2	1747142
7440−23−5	Sodium	45000	ug/L		100	300	300	1	P	HSC	03/22/18 15:06	032218−1	1747138
7440−61−1	Uranium	0.899	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/21/18 09:04	180320−2	1747142
7440−66−6	Zinc	3.62	ug/L	B	3.3	10	10	1	MS	BAJ	03/21/18 09:04	180320−2	1747142

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1747138	1747137	SW846 3005A	50	mL	50	mL	03/14/18	JXM8
1747142	1747141	SW846 3005A	50	mL	50	mL	03/14/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445848 **CONTRACT:** CPRC0F16046 **METHOD TYPE:** SW846

SAMPLE ID: 445848005 **BASIS:** As Received **DATE COLLECTED** 13−MAR−18

CLIENT ID: B3HXP7 **LEVEL:** Low **DATE RECEIVED** 14−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/21/18 09:08	180320−2	1747142
7440−42−8	Boron	29.4	ug/L	B	15	50	50	1	P	HSC	03/22/18 15:09	032218−1	1747138
7440−70−2	Calcium	64500	ug/L		50	200	200	1	P	HSC	03/22/18 15:09	032218−1	1747138
7440−47−3	Chromium	3	ug/L	U	3	10	10	1	MS	BAJ	03/21/18 09:08	180320−2	1747142
7440−48−4	Cobalt	13.2	ug/L		0.3	1	1	1	MS	BAJ	03/21/18 09:08	180320−2	1747142
7440−50−8	Copper	7.86	ug/L		0.3	1	1	1	MS	BAJ	03/21/18 09:08	180320−2	1747142
7439−89−6	Iron	112	ug/L		30	100	100	1	P	HSC	03/22/18 15:09	032218−1	1747138
7439−95−4	Magnesium	21700	ug/L		110	300	300	1	P	HSC	03/22/18 15:09	032218−1	1747138
7439−96−5	Manganese	56.2	ug/L		1	5	5	1	MS	BAJ	03/21/18 11:27	180321−3	1747142
7439−98−7	Molybdenum	29.9	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/21/18 09:08	180320−2	1747142
7440−02−0	Nickel	9.58	ug/L		0.6	2	2	1	MS	BAJ	03/21/18 09:08	180320−2	1747142
7440−09−7	Potassium	5440	ug/L		50	150	150	1	P	HSC	03/22/18 15:09	032218−1	1747138
7782−49−2	Selenium	3.18	ug/L	B	2	5	5	1	MS	BAJ	03/21/18 09:08	180320−2	1747142
7440−23−5	Sodium	42200	ug/L		100	300	300	1	P	HSC	03/22/18 15:09	032218−1	1747138
7440−61−1	Uranium	0.882	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/21/18 09:08	180320−2	1747142
7440−66−6	Zinc	3.49	ug/L	B	3.3	10	10	1	MS	BAJ	03/21/18 09:08	180320−2	1747142

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1747138	1747137	SW846 3005A	50	mL	50	mL	03/14/18	JXM8
1747142	1747141	SW846 3005A	50	mL	50	mL	03/14/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445848 **CONTRACT:** CPRC0F16046 **METHOD TYPE:** SW846

SAMPLE ID: 445848006 **BASIS:** As Received **DATE COLLECTED** 13−MAR−18

CLIENT ID: B3HXR2 **LEVEL:** Low **DATE RECEIVED** 14−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/21/18 09:11	180320−2	1747142
7440−42−8	Boron	15	ug/L	U	15	50	50	1	P	HSC	03/22/18 15:12	032218−1	1747138
7440−70−2	Calcium	61800	ug/L		50	200	200	1	P	HSC	03/22/18 15:12	032218−1	1747138
7440−47−3	Chromium	4.88	ug/L	B	3	10	10	1	MS	BAJ	03/21/18 09:11	180320−2	1747142
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/21/18 09:11	180320−2	1747142
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/21/18 09:11	180320−2	1747142
7439−89−6	Iron	39.6	ug/L	B	30	100	100	1	P	HSC	03/22/18 15:12	032218−1	1747138
7439−95−4	Magnesium	18800	ug/L		110	300	300	1	P	HSC	03/22/18 15:12	032218−1	1747138
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/21/18 11:28	180321−3	1747142
7439−98−7	Molybdenum	6.17	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/21/18 09:11	180320−2	1747142
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/21/18 09:11	180320−2	1747142
7440−09−7	Potassium	6600	ug/L		50	150	150	1	P	HSC	03/22/18 15:12	032218−1	1747138
7782−49−2	Selenium	4.53	ug/L	B	2	5	5	1	MS	BAJ	03/21/18 09:11	180320−2	1747142
7440−23−5	Sodium	47600	ug/L		100	300	300	1	P	HSC	03/22/18 15:12	032218−1	1747138
7440−61−1	Uranium	222	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/21/18 09:11	180320−2	1747142
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/21/18 09:11	180320−2	1747142

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1747138	1747137	SW846 3005A	50	mL	50	mL	03/14/18	JXM8
1747142	1747141	SW846 3005A	50	mL	50	mL	03/14/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445848 **CONTRACT:** CPRC0F16046 **METHOD TYPE:** SW846

SAMPLE ID: 445848007 **BASIS:** As Received **DATE COLLECTED** 13−MAR−18

CLIENT ID: B3HXT1 **LEVEL:** Low **DATE RECEIVED** 14−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/21/18 09:14	180320−2	1747142
7440−42−8	Boron	15	ug/L	U	15	50	50	1	P	HSC	03/22/18 15:15	032218−1	1747138
7440−70−2	Calcium	60900	ug/L		50	200	200	1	P	HSC	03/22/18 15:15	032218−1	1747138
7440−47−3	Chromium	6.66	ug/L	B	3	10	10	1	MS	BAJ	03/21/18 09:14	180320−2	1747142
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/21/18 09:14	180320−2	1747142
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/21/18 09:14	180320−2	1747142
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	HSC	03/22/18 15:15	032218−1	1747138
7439−95−4	Magnesium	18400	ug/L		110	300	300	1	P	HSC	03/22/18 15:15	032218−1	1747138
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/21/18 11:30	180321−3	1747142
7439−98−7	Molybdenum	4.99	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/21/18 09:14	180320−2	1747142
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/21/18 09:14	180320−2	1747142
7440−09−7	Potassium	6620	ug/L		50	150	150	1	P	HSC	03/22/18 15:15	032218−1	1747138
7782−49−2	Selenium	3.82	ug/L	B	2	5	5	1	MS	BAJ	03/21/18 09:14	180320−2	1747142
7440−23−5	Sodium	47300	ug/L		100	300	300	1	P	HSC	03/22/18 15:15	032218−1	1747138
7440−61−1	Uranium	4.91	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/21/18 09:14	180320−2	1747142
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/21/18 09:14	180320−2	1747142

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1747138	1747137	SW846 3005A	50	mL	50	mL	03/14/18	JXM8
1747142	1747141	SW846 3005A	50	mL	50	mL	03/14/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

GEL Laboratories LLC

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445848 **CONTRACT:** CPRC0F16046 **METHOD TYPE:** SW846

SAMPLE ID: 445848008 **BASIS:** As Received **DATE COLLECTED** 13−MAR−18

CLIENT ID: B3HXT3 **LEVEL:** Low **DATE RECEIVED** 14−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/21/18 09:17	180320−2	1747142
7440−42−8	Boron	15	ug/L	U	15	50	50	1	P	HSC	03/22/18 15:18	032218−1	1747138
7440−70−2	Calcium	61300	ug/L		50	200	200	1	P	HSC	03/22/18 15:18	032218−1	1747138
7440−47−3	Chromium	7.14	ug/L	B	3	10	10	1	MS	BAJ	03/21/18 09:17	180320−2	1747142
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/21/18 09:17	180320−2	1747142
7440−50−8	Copper	0.512	ug/L	B	0.3	1	1	1	MS	BAJ	03/21/18 09:17	180320−2	1747142
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	HSC	03/22/18 15:18	032218−1	1747138
7439−95−4	Magnesium	18800	ug/L		110	300	300	1	P	HSC	03/22/18 15:18	032218−1	1747138
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/21/18 11:31	180321−3	1747142
7439−98−7	Molybdenum	5.94	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/21/18 09:17	180320−2	1747142
7440−02−0	Nickel	3.72	ug/L		0.6	2	2	1	MS	BAJ	03/21/18 09:17	180320−2	1747142
7440−09−7	Potassium	6570	ug/L		50	150	150	1	P	HSC	03/22/18 15:18	032218−1	1747138
7782−49−2	Selenium	4	ug/L	B	2	5	5	1	MS	BAJ	03/21/18 09:17	180320−2	1747142
7440−23−5	Sodium	47400	ug/L		100	300	300	1	P	HSC	03/22/18 15:18	032218−1	1747138
7440−61−1	Uranium	0.288	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/21/18 09:17	180320−2	1747142
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/21/18 09:17	180320−2	1747142

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1747138	1747137	SW846 3005A	50	mL	50	mL	03/14/18	JXM8
1747142	1747141	SW846 3005A	50	mL	50	mL	03/14/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445848 **CONTRACT:** CPRC0F16046 **METHOD TYPE:** SW846

SAMPLE ID: 445848009 **BASIS:** As Received **DATE COLLECTED** 13−MAR−18

CLIENT ID: B3HXT5 **LEVEL:** Low **DATE RECEIVED** 14−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/21/18 09:21	180320−2	1747142
7440−42−8	Boron	15	ug/L	U	15	50	50	1	P	HSC	03/22/18 15:21	032218−1	1747138
7440−70−2	Calcium	60100	ug/L		50	200	200	1	P	HSC	03/22/18 15:21	032218−1	1747138
7440−47−3	Chromium	7.45	ug/L	B	3	10	10	1	MS	BAJ	03/21/18 09:21	180320−2	1747142
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/21/18 09:21	180320−2	1747142
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/21/18 09:21	180320−2	1747142
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	HSC	03/22/18 15:21	032218−1	1747138
7439−95−4	Magnesium	18300	ug/L		110	300	300	1	P	HSC	03/22/18 15:21	032218−1	1747138
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/21/18 11:32	180321−3	1747142
7439−98−7	Molybdenum	5.68	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/21/18 09:21	180320−2	1747142
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/21/18 09:21	180320−2	1747142
7440−09−7	Potassium	6500	ug/L		50	150	150	1	P	HSC	03/22/18 15:21	032218−1	1747138
7782−49−2	Selenium	4.59	ug/L	B	2	5	5	1	MS	BAJ	03/21/18 09:21	180320−2	1747142
7440−23−5	Sodium	46400	ug/L		100	300	300	1	P	HSC	03/22/18 15:21	032218−1	1747138
7440−61−1	Uranium	0.067	ug/L	U	0.067	0.2	0.2	1	MS	BAJ	03/21/18 09:21	180320−2	1747142
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/21/18 09:21	180320−2	1747142

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1747138	1747137	SW846 3005A	50	mL	50	mL	03/14/18	JXM8
1747142	1747141	SW846 3005A	50	mL	50	mL	03/14/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445848 **CONTRACT:** CPRC0F16046 **METHOD TYPE:** SW846

SAMPLE ID: 445848010 **BASIS:** As Received **DATE COLLECTED** 13−MAR−18

CLIENT ID: B3HXR7 **LEVEL:** Low **DATE RECEIVED** 14−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/21/18 09:31	180320−2	1747142
7440−42−8	Boron	15	ug/L	U	15	50	50	1	P	HSC	03/22/18 15:29	032218−1	1747138
7440−70−2	Calcium	58600	ug/L		50	200	200	1	P	HSC	03/22/18 15:29	032218−1	1747138
7440−47−3	Chromium	23.6	ug/L		3	10	10	1	MS	BAJ	03/21/18 09:31	180320−2	1747142
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/21/18 09:31	180320−2	1747142
7440−50−8	Copper	0.351	ug/L	B	0.3	1	1	1	MS	BAJ	03/21/18 09:31	180320−2	1747142
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	HSC	03/22/18 15:29	032218−1	1747138
7439−95−4	Magnesium	18500	ug/L		110	300	300	1	P	HSC	03/22/18 15:29	032218−1	1747138
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/21/18 11:37	180321−3	1747142
7439−98−7	Molybdenum	5.12	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/21/18 09:31	180320−2	1747142
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/21/18 09:31	180320−2	1747142
7440−09−7	Potassium	5870	ug/L		50	150	150	1	P	HSC	03/22/18 15:29	032218−1	1747138
7782−49−2	Selenium	3.89	ug/L	B	2	5	5	1	MS	BAJ	03/21/18 09:31	180320−2	1747142
7440−23−5	Sodium	37300	ug/L		100	300	300	1	P	HSC	03/22/18 15:29	032218−1	1747138
7440−61−1	Uranium	0.773	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/21/18 09:31	180320−2	1747142
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/21/18 09:31	180320−2	1747142

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1747138	1747137	SW846 3005A	50	mL	50	mL	03/14/18	JXM8
1747142	1747141	SW846 3005A	50	mL	50	mL	03/14/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

GEL Laboratories LLC

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445848 **CONTRACT:** CPRC0F16046 **METHOD TYPE:** SW846

SAMPLE ID: 445848011 **BASIS:** As Received **DATE COLLECTED** 13−MAR−18

CLIENT ID: B3HXT8 **LEVEL:** Low **DATE RECEIVED** 14−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/21/18 09:34	180320−2	1747142
7440−42−8	Boron	15	ug/L	U	15	50	50	1	P	HSC	03/22/18 15:32	032218−1	1747138
7440−70−2	Calcium	59500	ug/L		50	200	200	1	P	HSC	03/22/18 15:32	032218−1	1747138
7440−47−3	Chromium	20.1	ug/L		3	10	10	1	MS	BAJ	03/21/18 09:34	180320−2	1747142
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/21/18 09:34	180320−2	1747142
7440−50−8	Copper	0.460	ug/L	B	0.3	1	1	1	MS	BAJ	03/21/18 09:34	180320−2	1747142
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	HSC	03/22/18 15:32	032218−1	1747138
7439−95−4	Magnesium	18900	ug/L		110	300	300	1	P	HSC	03/22/18 15:32	032218−1	1747138
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/21/18 11:38	180321−3	1747142
7439−98−7	Molybdenum	5.25	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/21/18 09:34	180320−2	1747142
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/21/18 09:34	180320−2	1747142
7440−09−7	Potassium	5870	ug/L		50	150	150	1	P	HSC	03/22/18 15:32	032218−1	1747138
7782−49−2	Selenium	4.28	ug/L	B	2	5	5	1	MS	BAJ	03/21/18 09:34	180320−2	1747142
7440−23−5	Sodium	37700	ug/L		100	300	300	1	P	HSC	03/22/18 15:32	032218−1	1747138
7440−61−1	Uranium	0.606	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/21/18 09:34	180320−2	1747142
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/21/18 09:34	180320−2	1747142

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1747138	1747137	SW846 3005A	50	mL	50	mL	03/14/18	JXM8
1747142	1747141	SW846 3005A	50	mL	50	mL	03/14/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445848 **CONTRACT:** CPRC0F16046 **METHOD TYPE:** SW846

SAMPLE ID: 445848012 **BASIS:** As Received **DATE COLLECTED** 13−MAR−18

CLIENT ID: B3HXR8 **LEVEL:** Low **DATE RECEIVED** 14−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/21/18 09:37	180320−2	1747142
7440−42−8	Boron	15	ug/L	U	15	50	50	1	P	HSC	03/22/18 15:35	032218−1	1747138
7440−70−2	Calcium	58100	ug/L		50	200	200	1	P	HSC	03/22/18 15:35	032218−1	1747138
7440−47−3	Chromium	22.9	ug/L		3	10	10	1	MS	BAJ	03/21/18 09:37	180320−2	1747142
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/21/18 09:37	180320−2	1747142
7440−50−8	Copper	0.311	ug/L	B	0.3	1	1	1	MS	BAJ	03/21/18 09:37	180320−2	1747142
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	HSC	03/22/18 15:35	032218−1	1747138
7439−95−4	Magnesium	18500	ug/L		110	300	300	1	P	HSC	03/22/18 15:35	032218−1	1747138
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/21/18 11:40	180321−3	1747142
7439−98−7	Molybdenum	4.93	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/21/18 09:37	180320−2	1747142
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/21/18 09:37	180320−2	1747142
7440−09−7	Potassium	5740	ug/L		50	150	150	1	P	HSC	03/22/18 15:35	032218−1	1747138
7782−49−2	Selenium	3.46	ug/L	B	2	5	5	1	MS	BAJ	03/21/18 09:37	180320−2	1747142
7440−23−5	Sodium	36600	ug/L		100	300	300	1	P	HSC	03/22/18 15:35	032218−1	1747138
7440−61−1	Uranium	0.811	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/21/18 09:37	180320−2	1747142
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/21/18 09:37	180320−2	1747142

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1747138	1747137	SW846 3005A	50	mL	50	mL	03/14/18	JXM8
1747142	1747141	SW846 3005A	50	mL	50	mL	03/14/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

GEL Laboratories LLC

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445848 **CONTRACT:** CPRC0F16046 **METHOD TYPE:** SW846

SAMPLE ID: 445848013 **BASIS:** As Received **DATE COLLECTED** 13−MAR−18

CLIENT ID: B3HXT9 **LEVEL:** Low **DATE RECEIVED** 14−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/21/18 09:40	180320−2	1747142
7440−42−8	Boron	15	ug/L	U	15	50	50	1	P	HSC	03/22/18 15:39	032218−1	1747138
7440−70−2	Calcium	58200	ug/L		50	200	200	1	P	HSC	03/22/18 15:39	032218−1	1747138
7440−47−3	Chromium	20.2	ug/L		3	10	10	1	MS	BAJ	03/21/18 09:40	180320−2	1747142
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/21/18 09:40	180320−2	1747142
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/21/18 09:40	180320−2	1747142
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	HSC	03/22/18 15:39	032218−1	1747138
7439−95−4	Magnesium	18400	ug/L		110	300	300	1	P	HSC	03/22/18 15:39	032218−1	1747138
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/21/18 11:41	180321−3	1747142
7439−98−7	Molybdenum	5.09	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/21/18 09:40	180320−2	1747142
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/21/18 09:40	180320−2	1747142
7440−09−7	Potassium	5740	ug/L		50	150	150	1	P	HSC	03/22/18 15:39	032218−1	1747138
7782−49−2	Selenium	4.05	ug/L	B	2	5	5	1	MS	BAJ	03/21/18 09:40	180320−2	1747142
7440−23−5	Sodium	36900	ug/L		100	300	300	1	P	HSC	03/22/18 15:39	032218−1	1747138
7440−61−1	Uranium	0.591	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/21/18 09:40	180320−2	1747142
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/21/18 09:40	180320−2	1747142

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1747138	1747137	SW846 3005A	50	mL	50	mL	03/14/18	JXM8
1747142	1747141	SW846 3005A	50	mL	50	mL	03/14/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445848 **CONTRACT:** CPRC0F16046 **METHOD TYPE:** SW846

SAMPLE ID: 445848014 **BASIS:** As Received **DATE COLLECTED** 13−MAR−18

CLIENT ID: B3HXT0 **LEVEL:** Low **DATE RECEIVED** 14−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/21/18 09:44	180320−2	1747142
7440−42−8	Boron	15	ug/L	U	15	50	50	1	P	HSC	03/22/18 15:42	032218−1	1747138
7440−70−2	Calcium	60700	ug/L		50	200	200	1	P	HSC	03/22/18 15:42	032218−1	1747138
7440−47−3	Chromium	7.3	ug/L	B	3	10	10	1	MS	BAJ	03/21/18 09:44	180320−2	1747142
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/21/18 09:44	180320−2	1747142
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/21/18 09:44	180320−2	1747142
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	HSC	03/22/18 15:42	032218−1	1747138
7439−95−4	Magnesium	18500	ug/L		110	300	300	1	P	HSC	03/22/18 15:42	032218−1	1747138
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/21/18 11:43	180321−3	1747142
7439−98−7	Molybdenum	5.1	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/21/18 09:44	180320−2	1747142
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/21/18 09:44	180320−2	1747142
7440−09−7	Potassium	6500	ug/L		50	150	150	1	P	HSC	03/22/18 15:42	032218−1	1747138
7782−49−2	Selenium	3.47	ug/L	B	2	5	5	1	MS	BAJ	03/21/18 09:44	180320−2	1747142
7440−23−5	Sodium	46800	ug/L		100	300	300	1	P	HSC	03/22/18 15:42	032218−1	1747138
7440−61−1	Uranium	4.88	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/21/18 09:44	180320−2	1747142
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/21/18 09:44	180320−2	1747142

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1747138	1747137	SW846 3005A	50	mL	50	mL	03/14/18	JXM8
1747142	1747141	SW846 3005A	50	mL	50	mL	03/14/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445848 **CONTRACT:** CPRC0F16046 **METHOD TYPE:** SW846

SAMPLE ID: 445848015 **BASIS:** As Received **DATE COLLECTED** 13−MAR−18

CLIENT ID: B3HXT2 **LEVEL:** Low **DATE RECEIVED** 14−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/21/18 09:47	180320−2	1747142
7440−42−8	Boron	15	ug/L	U	15	50	50	1	P	HSC	03/22/18 15:45	032218−1	1747138
7440−70−2	Calcium	62300	ug/L		50	200	200	1	P	HSC	03/22/18 15:45	032218−1	1747138
7440−47−3	Chromium	7.36	ug/L	B	3	10	10	1	MS	BAJ	03/21/18 09:47	180320−2	1747142
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/21/18 09:47	180320−2	1747142
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/21/18 09:47	180320−2	1747142
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	HSC	03/22/18 15:45	032218−1	1747138
7439−95−4	Magnesium	19000	ug/L		110	300	300	1	P	HSC	03/22/18 15:45	032218−1	1747138
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/21/18 11:44	180321−3	1747142
7439−98−7	Molybdenum	5.97	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/21/18 09:47	180320−2	1747142
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/21/18 09:47	180320−2	1747142
7440−09−7	Potassium	6720	ug/L		50	150	150	1	P	HSC	03/22/18 15:45	032218−1	1747138
7782−49−2	Selenium	3.82	ug/L	B	2	5	5	1	MS	BAJ	03/21/18 09:47	180320−2	1747142
7440−23−5	Sodium	48100	ug/L		100	300	300	1	P	HSC	03/22/18 15:45	032218−1	1747138
7440−61−1	Uranium	0.274	ug/L		0.067	0.2	0.2	1	MS	BAJ	03/21/18 09:47	180320−2	1747142
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/21/18 09:47	180320−2	1747142

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1747138	1747137	SW846 3005A	50	mL	50	mL	03/14/18	JXM8
1747142	1747141	SW846 3005A	50	mL	50	mL	03/14/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL445848 **CONTRACT:** CPRC0F16046 **METHOD TYPE:** SW846

SAMPLE ID: 445848016 **BASIS:** As Received **DATE COLLECTED** 13−MAR−18

CLIENT ID: B3HXT4 **LEVEL:** Low **DATE RECEIVED** 14−MAR−18

MATRIX: WATER **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	19.3	ug/L	U	19.3	50	50	1	MS	BAJ	03/21/18 09:50	180320−2	1747142
7440−42−8	Boron	15	ug/L	U	15	50	50	1	P	HSC	03/22/18 15:48	032218−1	1747138
7440−70−2	Calcium	61500	ug/L		50	200	200	1	P	HSC	03/22/18 15:48	032218−1	1747138
7440−47−3	Chromium	7.34	ug/L	B	3	10	10	1	MS	BAJ	03/21/18 09:50	180320−2	1747142
7440−48−4	Cobalt	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/21/18 09:50	180320−2	1747142
7440−50−8	Copper	0.30	ug/L	U	0.3	1	1	1	MS	BAJ	03/21/18 09:50	180320−2	1747142
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	HSC	03/22/18 15:48	032218−1	1747138
7439−95−4	Magnesium	18600	ug/L		110	300	300	1	P	HSC	03/22/18 15:48	032218−1	1747138
7439−96−5	Manganese	1	ug/L	U	1	5	5	1	MS	BAJ	03/21/18 11:46	180321−3	1747142
7439−98−7	Molybdenum	5.39	ug/L		0.2	0.5	0.5	1	MS	BAJ	03/21/18 09:50	180320−2	1747142
7440−02−0	Nickel	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	03/21/18 09:50	180320−2	1747142
7440−09−7	Potassium	6670	ug/L		50	150	150	1	P	HSC	03/22/18 15:48	032218−1	1747138
7782−49−2	Selenium	4.81	ug/L	B	2	5	5	1	MS	BAJ	03/21/18 09:50	180320−2	1747142
7440−23−5	Sodium	47600	ug/L		100	300	300	1	P	HSC	03/22/18 15:48	032218−1	1747138
7440−61−1	Uranium	0.067	ug/L	U	0.067	0.2	0.2	1	MS	BAJ	03/21/18 09:50	180320−2	1747142
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	MS	BAJ	03/21/18 09:50	180320−2	1747142

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1747138	1747137	SW846 3005A	50	mL	50	mL	03/14/18	JXM8
1747142	1747141	SW846 3005A	50	mL	50	mL	03/14/18	JXM8

***Analytical Methods:**

P **SW846 3005A/6010D**

MS **SW846 3005A/6020B**

Quality Control Summary

GEL LABORATORIES LLC

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

QC Summary

Report Date: March 26, 2018

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **445848**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS										
Batch 1747142										
QC1203989606 LCS										
Aluminum	2000			1900	ug/L		95.1	(80%-120%)	BAJ	03/21/18 08:31
Chromium	50.0			46.5	ug/L		92.9	(80%-120%)		
Cobalt	50.0			50.0	ug/L		99.9	(80%-120%)		
Copper	50.0			49.5	ug/L		99	(80%-120%)		
Manganese	50.0			45.0	ug/L		90	(80%-120%)		03/21/18 11:12
Molybdenum	50.0			48.0	ug/L		95.9	(80%-120%)		03/21/18 08:31
Nickel	50.0			46.4	ug/L		92.8	(80%-120%)		
Selenium	50.0			46.1	ug/L		92.2	(80%-120%)		
Uranium	50.0			43.9	ug/L		87.8	(80%-120%)		
Zinc	50.0			48.4	ug/L		96.7	(80%-120%)		
QC1203989605 MB										
Aluminum			U	19.3	ug/L					03/21/18 08:28
Chromium			U	3.00	ug/L					
Cobalt			U	0.300	ug/L					

GEL LABORATORIES LLC
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QC Summary

Workorder: **445848**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS											
Batch 1747142											
Copper				U	0.300	ug/L				BAJ	03/21/18 08:28
Manganese				U	1.00	ug/L					03/21/18 11:10
Molybdenum				U	0.200	ug/L					03/21/18 08:28
Nickel				U	0.600	ug/L					
Selenium				U	2.00	ug/L					
Uranium				U	0.067	ug/L					
Zinc				U	3.30	ug/L					
QC1203989607 445848001 MS											
Aluminum	2000	U	19.3		1930	ug/L		96.4	(75%-125%)		03/21/18 08:38
Chromium	50.0	U	3.00		46.3	ug/L		91.4	(75%-125%)		
Cobalt	50.0		15.9		64.0	ug/L		96.3	(75%-125%)		
Copper	50.0		7.83		54.4	ug/L		93.2	(75%-125%)		
Manganese	50.0		68.9		116	ug/L		93.2	(75%-125%)		03/21/18 11:15
Molybdenum	50.0		29.3		81.0	ug/L		103	(75%-125%)		03/21/18 08:38
Nickel	50.0		9.67		54.3	ug/L		89.2	(75%-125%)		
Selenium	50.0	B	3.76		51.3	ug/L		95.1	(75%-125%)		

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QC Summary

Workorder: **445848**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS											
Batch 1747142											
Uranium	50.0		0.887		46.8	ug/L		91.8	(75%-125%)	BAJ	03/21/18 08:38
Zinc	50.0	B	3.62		51.8	ug/L		96.3	(75%-125%)		
QC1203989608 445848001 MSD											
Aluminum	2000	U	19.3		1950	ug/L	0.753	97.1	(0%-20%)		03/21/18 08:41
Chromium	50.0	U	3.00		48.1	ug/L	3.87	95	(0%-20%)		
Cobalt	50.0		15.9		64.9	ug/L	1.37	98	(0%-20%)		
Copper	50.0		7.83		54.9	ug/L	0.898	94.2	(0%-20%)		
Manganese	50.0		68.9		114	ug/L	1.76	89.1	(0%-20%)		03/21/18 11:16
Molybdenum	50.0		29.3		82.9	ug/L	2.37	107	(0%-20%)		03/21/18 08:41
Nickel	50.0		9.67		53.6	ug/L	1.36	87.8	(0%-20%)		
Selenium	50.0	B	3.76		52.1	ug/L	1.57	96.7	(0%-20%)		
Uranium	50.0		0.887		47.2	ug/L	0.815	92.6	(0%-20%)		
Zinc	50.0	B	3.62		49.5	ug/L	4.42	91.9	(0%-20%)		
QC1203989609 445848001 SDILT											
Aluminum		U	4.99	DU	96.5	ug/L	N/A		(0%-20%)		03/21/18 08:48
Chromium		U	0.642	DU	15.0	ug/L	N/A		(0%-20%)		
Cobalt			15.9	D	3.21	ug/L	1.11		(0%-20%)		

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QC Summary

Workorder: **445848**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS											
Batch 1747142											
Copper			7.83	D	1.63	ug/L	4.33		(0%-20%)	BAJ	03/21/18 08:48
Manganese			68.9	D	13.5	ug/L	2		(0%-20%)		03/21/18 11:18
Molybdenum			29.3	D	5.52	ug/L	5.71		(0%-20%)		03/21/18 08:48
Nickel			9.67	BD	1.90	ug/L	1.65		(0%-20%)		
Selenium		B	3.76	DU	10.0	ug/L	N/A		(0%-20%)		
Uranium			0.887	BD	0.178	ug/L	.338		(0%-20%)		
Zinc		B	3.62	DU	16.5	ug/L	N/A		(0%-20%)		
Metals Analysis-ICP											
Batch 1747138											
QC1203989596 LCS											
Boron	500				498	ug/L		99.6	(80%-120%)	HSC	03/22/18 14:43
Calcium	5000				4970	ug/L		99.3	(80%-120%)		
Iron	5000				4950	ug/L		99	(80%-120%)		
Magnesium	5000				4960	ug/L		99.3	(80%-120%)		
Potassium	5000				4930	ug/L		98.5	(80%-120%)		
Sodium	5000				4860	ug/L		97.3	(80%-120%)		
QC1203989595 MB											
Boron				U	15.0	ug/L					03/22/18 14:40

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QC Summary

Workorder: **445848**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP											
Batch 1747138											
Calcium				U	50.0	ug/L				HSC	03/22/18 14:40
Iron				U	30.0	ug/L					
Magnesium				U	110	ug/L					
Potassium				U	50.0	ug/L					
Sodium				U	100	ug/L					
QC1203989597 445848001 MS											
Boron	500	B	28.7		545	ug/L		103	(75%-125%)		03/22/18 14:48
Calcium	5000		65000		69700	ug/L		N/A	(75%-125%)		
Iron	5000	U	30.0		4940	ug/L		98.5	(75%-125%)		
Magnesium	5000		22000		26900	ug/L		N/A	(75%-125%)		
Potassium	5000		5340		10400	ug/L		102	(75%-125%)		
Sodium	5000		36000		41300	ug/L		N/A	(75%-125%)		
QC1203989598 445848001 MSD											
Boron	500	B	28.7		564	ug/L	3.43	107	(0%-20%)		03/22/18 14:50
Calcium	5000		65000		69700	ug/L	0.0143	N/A	(0%-20%)		
Iron	5000	U	30.0		5120	ug/L	3.56	102	(0%-20%)		
Magnesium	5000		22000		27100	ug/L	0.641	N/A	(0%-20%)		

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QC Summary

Workorder: **445848**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP											
Batch 1747138											
Potassium	5000		5340		10500	ug/L	0.907	104	(0%-20%)	HSC	03/22/18 14:50
Sodium	5000		36000		40600	ug/L	1.62	N/A	(0%-20%)		
QC1203989599 445848001 SDILT											
Boron		B	28.7	DU	75.0	ug/L	N/A		(0%-20%)		03/22/18 14:52
Calcium			65000	D	13100	ug/L	.645		(0%-20%)		
Iron		U	20.5	DU	150	ug/L	N/A		(0%-20%)		
Magnesium			22000	D	4480	ug/L	1.76		(0%-20%)		
Potassium			5340	D	1090	ug/L	2.57		(0%-20%)		
Sodium			36000	D	7280	ug/L	1.09		(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.
- 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

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QC Summary

Workorder: **445848**

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

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

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

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

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL445848
Work Order #: 445848

Product: **Cyanide, Free**
Analytical Method: 9014_CYANIDE
Analytical Procedure: GL-GC-E-073 REV# 8
Analytical Batches: 1747345 and 1747369

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

GEL Sample ID#	Client Sample Identification
445848001	B3HMT9
445848002	B3HMV5
445848003	B3HXR1
445848004	B3HMV0
445848005	B3HXP7
445848006	B3HXR2
445848007	B3HXT1
445848008	B3HXT3
445848009	B3HXT5
445848014	B3HXT0
445848015	B3HXT2
445848016	B3HXT4
1203989998	Method Blank (MB)
1203989999	Laboratory Control Sample (LCS)
1203990000	445848001(B3HMT9) Sample Duplicate (DUP)

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

Additional Comments
Total CN levels above the MDL for Free CN were detected in samples 445848001 (B3HMT9), 445848002 (B3HMV5), 445848003 (B3HXR1), 445848004 (B3HMV0), 445848005 (B3HXP7) and 445848006 (B3HXR2). Free CN was performed per SOP (GL-GC-E-073).

Product: **Cyanide, Amenable to Chlorination**
Analytical Method: 9012_CYANIDE
Analytical Procedure: GL-GC-E-107 REV# 10
Analytical Batches: 1747344, 1747343 and 1747342

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

GEL Sample ID#	Client Sample Identification
445848001	B3HMT9
445848002	B3HMV5
445848003	B3HXR1
445848004	B3HMV0
445848005	B3HXP7
445848006	B3HXR2
445848007	B3HXT1
445848008	B3HXT3
445848009	B3HXT5
445848014	B3HXT0
445848015	B3HXT2
445848016	B3HXT4

Data Summary:

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

Product: **Cyanide, Total**
Analytical Method: 9012_CYANIDE
Analytical Procedure: GL-GC-E-095 REV# 21
Analytical Batches: 1747341 and 1747340

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

GEL Sample ID#	Client Sample Identification
445848001	B3HMT9
445848002	B3HMV5
445848003	B3HXR1
445848004	B3HMV0
445848005	B3HXP7
445848006	B3HXR2
445848007	B3HXT1
445848008	B3HXT3
445848009	B3HXT5
445848014	B3HXT0
445848015	B3HXT2
445848016	B3HXT4
1203989988	Method Blank (MB)
1203989989	Laboratory Control Sample (LCS)
1203989991	445848001(B3HMT9) Sample Duplicate (DUP)
1203989993	445848001(B3HMT9) Matrix Spike (MS)

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

Data Summary:

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

Product: **Cyanide, Chlorinated**
Analytical Method: 9012_CYANIDE
Analytical Procedure: GL-GC-E-095 REV# 21
Analytical Batches: 1747343 and 1747342

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

GEL Sample ID#	Client Sample Identification
445848001	B3HMT9
445848002	B3HMV5
445848003	B3HXR1
445848004	B3HMV0
445848005	B3HXP7
445848006	B3HXR2
445848007	B3HXT1
445848008	B3HXT3
445848009	B3HXT5
445848014	B3HXT0
445848015	B3HXT2
445848016	B3HXT4
1203989994	Method Blank (MB)
1203989995	Laboratory Control Sample (LCS)
1203989996	445848001(B3HMT9) Sample Duplicate (DUP)
1203989997	445848002(B3HMV5) Sample Duplicate (DUP)

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

Data Summary:

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

Technical Information

Sample Re-analysis
Samples445848015 (B3HXT2) and 445848016 (B3HXT4) were re-analyzed due to CCV failure. The reanalysis data with passing instrument QC was reported.

Certification Statement

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

GEL LABORATORIES LLC

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Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL445848 GEL Work Order: 445848

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: 26 MAR 2018 **Title: Analyst I**

Sample Data Summary

GEL LABORATORIES LLC
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Certificate of Analysis

Report Date: March 26, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-046

Client Sample ID:	B3HMT9	Project:	CPRC0F16046
Sample ID:	445848001	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	13-MAR-18 09:42		
Receive Date:	14-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total	B	3.73	1.67	5.00	ug/L	1.00	1	AXH3	03/15/18	0736	1747341	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide		2.77	1.00	2.00	ug/L		1	AXH3	03/26/18	1038	1747345	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination	B	3.73	1.67	5.00	ug/L		1	AXH3	03/15/18	1040	1747344	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/15/18	0703	1747340
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/15/18	0819	1747342

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: March 26, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-046

Client Sample ID:	B3HMV5	Project:	CPRC0F16046
Sample ID:	445848002	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	13-MAR-18 09:42		
Receive Date:	14-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total	B	4.02	1.67	5.00	ug/L	1.00	1	AXH3	03/15/18	0739	1747341	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide		2.52	1.00	2.00	ug/L		1	AXH3	03/26/18	1038	1747345	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination	B	4.02	1.67	5.00	ug/L		1	AXH3	03/15/18	1040	1747344	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/15/18	0703	1747340
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/15/18	0819	1747342

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

Notes:

Column headers are defined as follows:

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

GEL LABORATORIES LLC
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Certificate of Analysis

Report Date: March 26, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-046

Client Sample ID:	B3HXR1	Project:	CPRC0F16046
Sample ID:	445848003	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	13-MAR-18 08:02		
Receive Date:	14-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total		95.8	1.67	5.00	ug/L	1.00	1	AXH3	03/15/18	0741	1747341	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide	B	1.31	1.00	2.00	ug/L		1	AXH3	03/26/18	1038	1747345	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination	B	4.50	1.67	5.00	ug/L		1	AXH3	03/15/18	1040	1747344	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/15/18	0703	1747340
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/15/18	0819	1747342

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: March 26, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-046

Client Sample ID:	B3HMV0	Project:	CPRC0F16046
Sample ID:	445848004	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	13-MAR-18 09:42		
Receive Date:	14-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total		11.2	1.67	5.00	ug/L	1.00	1	AXH3	03/15/18	0742	1747341	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide		2.52	1.00	2.00	ug/L		1	AXH3	03/26/18	1038	1747345	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination		11.2	1.67	5.00	ug/L		1	AXH3	03/15/18	1040	1747344	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/15/18	0703	1747340
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/15/18	0819	1747342

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: March 26, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-046

Client Sample ID:	B3HXP7	Project:	CPRC0F16046
Sample ID:	445848005	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	13-MAR-18 09:42		
Receive Date:	14-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total		10.3	1.67	5.00	ug/L	1.00	1	AXH3	03/15/18	0743	1747341	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide		3.01	1.00	2.00	ug/L		1	AXH3	03/26/18	1038	1747345	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination		10.3	1.67	5.00	ug/L		1	AXH3	03/15/18	1040	1747344	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/15/18	0703	1747340
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/15/18	0819	1747342

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: March 26, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-046

Client Sample ID:	B3HXR2	Project:	CPRC0F16046
Sample ID:	445848006	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	13-MAR-18 08:02		
Receive Date:	14-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total		98.0	1.67	5.00	ug/L	1.00	1	AXH3	03/15/18	0744	1747341	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide		2.28	1.00	2.00	ug/L		1	AXH3	03/26/18	1038	1747345	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination		12.1	1.67	5.00	ug/L		1	AXH3	03/15/18	1040	1747344	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/15/18	0703	1747340
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/15/18	0819	1747342

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: March 26, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-046

Client Sample ID:	B3HXT1	Project:	CPRC0F16046
Sample ID:	445848007	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	13-MAR-18 08:12		
Receive Date:	14-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total	U	1.67	1.67	5.00	ug/L	1.00	1	AXH3	03/15/18	0749	1747341	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide	U	1.00	1.00	2.00	ug/L		1	AXH3	03/15/18	0756	1747369	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination	U	1.67	1.67	5.00	ug/L		1	AXH3	03/15/18	1040	1747344	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/15/18	0703	1747340
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/15/18	0819	1747342

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: March 26, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-046

Client Sample ID:	B3HXT3	Project:	CPRC0F16046
Sample ID:	445848008	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	13-MAR-18 08:17		
Receive Date:	14-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total	U	1.67	1.67	5.00	ug/L	1.00	1	AXH3	03/15/18	0750	1747341	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide	U	1.00	1.00	2.00	ug/L		1	AXH3	03/15/18	0756	1747369	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination	U	1.67	1.67	5.00	ug/L		1	AXH3	03/15/18	1040	1747344	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/15/18	0703	1747340
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/15/18	0819	1747342

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: March 26, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-046

Client Sample ID:	B3HXT5	Project:	CPRC0F16046
Sample ID:	445848009	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	13-MAR-18 08:23		
Receive Date:	14-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total	U	1.67	1.67	5.00	ug/L	1.00	1	AXH3	03/15/18	0751	1747341	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide	U	1.00	1.00	2.00	ug/L		1	AXH3	03/15/18	0756	1747369	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination	U	1.67	1.67	5.00	ug/L		1	AXH3	03/15/18	1040	1747344	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/15/18	0703	1747340
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/15/18	0819	1747342

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: March 26, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-046

Client Sample ID:	B3HXT0	Project:	CPRC0F16046
Sample ID:	445848014	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	13-MAR-18 08:12		
Receive Date:	14-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total	U	1.67	1.67	5.00	ug/L	1.00	1	AXH3	03/15/18	0752	1747341	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide	U	1.00	1.00	2.00	ug/L		1	AXH3	03/15/18	0756	1747369	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination	U	1.67	1.67	5.00	ug/L		1	AXH3	03/15/18	1040	1747344	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/15/18	0703	1747340
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/15/18	0819	1747342

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: March 26, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-046

Client Sample ID:	B3HXT2	Project:	CPRC0F16046
Sample ID:	445848015	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	13-MAR-18 08:17		
Receive Date:	14-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total	U	1.67	1.67	5.00	ug/L	1.00	1	AXH3	03/15/18	0753	1747341	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide	U	1.00	1.00	2.00	ug/L		1	AXH3	03/15/18	0756	1747369	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination	U	1.67	1.67	5.00	ug/L		1	AXH3	03/15/18	1040	1747344	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/15/18	0703	1747340
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/15/18	0819	1747342

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

Notes:

Column headers are defined as follows:

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

GEL LABORATORIES LLC
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Certificate of Analysis

Report Date: March 26, 2018

Company :	CH2MHill Plateau Remediation Company
Address :	MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352
Contact:	Mr. Scot Fitzgerald
Project:	CHPRC SAF F16-046

Client Sample ID:	B3HXT4	Project:	CPRC0F16046
Sample ID:	445848016	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	13-MAR-18 08:23		
Receive Date:	14-MAR-18		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
9012_CYANIDE (TOTAL): COMMON "As Received"												
Cyanide, Total	U	1.67	1.67	5.00	ug/L	1.00	1	AXH3	03/15/18	0754	1747341	1
9014_CN (FREE): COMMON "As Received"												
Free Cyanide	U	1.00	1.00	2.00	ug/L		1	AXH3	03/15/18	0756	1747369	2
9012_CN (AMENABLE): COMMON "See Parent Products"												
Cyanide amenable to chlorination	U	1.67	1.67	5.00	ug/L		1	AXH3	03/15/18	1040	1747344	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9010C Distillation	SW846 9010C Prep	AXH3	03/15/18	0703	1747340
SW846 9012B	SW846 9012B Cyanide, Chlorinated Prep	AXH3	03/15/18	0819	1747342

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9012_CYANIDE	
2	9014_CYANIDE	
3	9012_CYANIDE	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	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: March 26, 2018

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **445848**

Parmname	NOM		Sample	Qual	QC	Units	RPD%		REC%	Range	Anlst	Date Time
Flow Injection Analysis												
Batch 1747341												
QC1203989991 445848001 DUP												
Cyanide, Total		B	3.73	B	3.90	ug/L	4.46	^		(+/-5.00)	AXH3	03/15/18 07:37
QC1203989989 LCS												
Cyanide, Total	50.0				50.7	ug/L			101	(80%-120%)		03/15/18 07:35
QC1203989988 MB												
Cyanide, Total				U	1.67	ug/L						03/15/18 07:34
QC1203989993 445848001 MS												
Cyanide, Total	100	B	3.73		105	ug/L			101	(75%-125%)		03/15/18 07:38
Batch 1747343												
QC1203989996 445848001 DUP												
Cyanide, Chlorinated		U	1.67	U	1.67	ug/L	N/A				AXH3	03/15/18 08:42
QC1203989997 445848002 DUP												
Cyanide, Chlorinated		U	1.67	U	1.67	ug/L	N/A					03/15/18 08:49
QC1203989995 LCS												
Cyanide, Chlorinated	50.0			U	1.67	ug/L			0	(-200%-200%)		03/15/18 08:40
QC1203989994 MB												
Cyanide, Chlorinated				U	1.67	ug/L						03/15/18 08:39
Batch 1747345												
QC1203990000 445848001 DUP												
Free Cyanide			2.77		2.28	ug/L	19.2	^		(+/-2.00)	AXH3	03/26/18 10:38

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QC Summary

Workorder: **445848**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Flow Injection Analysis											
Batch 1747345											
QC1203989999 LCS											
Free Cyanide	25.0			24.9	ug/L		99.4	(80%-120%)	AXH3	03/26/18	10:38
QC1203989998 MB											
Free Cyanide			U	1.00	ug/L					03/26/18	10:38

Notes:

The Qualifiers in this report are defined as follows:

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

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 #: GEL445848
Work Order #: 445848

Product: **I129LL_SEP_LEPS_GS: COMMON (low level)**
Analytical Method: DOE EML HASL-300,I-01 Modified
Analytical Procedure: GL-RAD-A-006 REV# 21
Analytical Batch: 1746931

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

GEL Sample ID#	Client Sample Identification
445848001	B3HMT9
445848002	B3HMV5
445848003	B3HXR1
445848010	B3HXR7
445848011	B3HXT8
1203989189	Method Blank (MB)
1203989190	445713001(NonSDG) Sample Duplicate (DUP)
1203989191	445713001(NonSDG) Matrix Spike (MS)
1203989192	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 445848011 (B3HXT8) was recounted due to poor detector resolution. The recount is being reported.

Qualifier Information

Qualifier	Reason	Analyte	Sample	Client Sample
X	Results are considered a false positive due to high counting uncertainty.	Iodine-129	445848011	B3HXT8
X	Results are considered a false positive due to no valid peak.		445848001	B3HMT9
			445848002	B3HMV5

Product: **TC99_EIE_LSC: COMMON**
Analytical Method: TC99_EIE_LSC
Analytical Procedure: GL-RAD-A-059 REV# 5
Analytical Batch: 1747308

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

GEL Sample ID#	Client Sample Identification
445848001	B3HMT9
445848002	B3HMV5
445848003	B3HXR1
445848010	B3HXR7
445848011	B3HXT8
445848014	B3HXT0
445848015	B3HXT2
445848016	B3HXT4
1203989890	Method Blank (MB)
1203989891	445848001(B3HMT9) Sample Duplicate (DUP)
1203989892	Laboratory Control Sample (LCS)

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

Data Summary:

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

Technical Information

Recounts
Samples 1203989891 (B3HMT9DUP), 445848001 (B3HMT9), 445848002 (B3HMV5), 445848003 (B3HXR1), 445848010 (B3HXR7), 445848011 (B3HXT8), 445848014 (B3HXT0) and 445848016 (B3HXT4) were recounted to verify sample results. Recounts are reported.

Product: **TRITIUM_DIST_LSC: COMMON**
Analytical Method: TRITIUM_DIST_LSC
Analytical Procedure: GL-RAD-A-002 REV# 22
Analytical Batch: 1748118

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

GEL Sample ID#	Client Sample Identification
445848001	B3HMT9
445848002	B3HMV5
445848003	B3HXR1
445848010	B3HXR7
445848011	B3HXT8
1203991696	Method Blank (MB)
1203991697	445848001(B3HMT9) Sample Duplicate (DUP)

1203991698	445848001(B3HMT9) Matrix Spike (MS)
1203991699	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.

Miscellaneous Information

Additional Comments
The matrix spike, 1203991698 (B3HMT9MS), aliquot was 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: GEL445848 GEL Work Order: 445848

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.

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

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: Heather M. McCarty **Name: Heather McCarty**

Date: 27 MAR 2018 **Title: Analyst II**

Sample Data Summary

Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445848**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16046**
Lab Sample ID:	**445848001**	**Date Collected:**	**03/13/2018 09:42**	**Matrix:**	**WATER**
		Date Received:	**03/14/2018 09:00**		
Client ID:	**B3HMT9**			**Prep Basis:**	**"As Received"**
Batch ID:	**1746931**	**Method:**	**DOE EML HASL-300,I-01 Mo**	**SOP Ref:**	**GL-RAD-A-006**
Run Date:	**03/19/2018 07:50**	**Analyst:**	**BSW1**	**Instrument:**	**GAM05**
Data File:	**I445848001.CNF;1**	**Aliquot:**	**1.2 L**	**Count Time:**	**120 min**
Prep Batch:	**1746931**	**Prep Method:**	**DOE EML HASL-300,I-01 M**		
Prep Date:	**03/15/2018 11:17**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	X	0.840	pCi/L	+/-0.801	0.805	0.835	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
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:	**GEL445848**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16046**
Lab Sample ID:	**445848001**	**Date Collected:**	**03/13/2018 09:42**	**Matrix:**	**WATER**
		Date Received:	**03/14/2018 09:00**		
Client ID:	**B3HMT9**			**Prep Basis:**	**"As Received"**
Batch ID:	**1747308**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/26/2018 08:04**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCMOCHA**
Data File:	**E1747308R.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**25 min**
Prep Batch:	**1747308**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/20/2018 16:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		62.4	pCi/L	+/-26.4	27.3	42.1	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	20900	28800	CPM	72.5	(30%-105%)

Comments:

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
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Rad
Certificate of Analysis
Sample Summary

SDG Number:	**GEL445848**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16046**
Lab Sample ID:	**445848001**	**Date Collected:**	**03/13/2018 09:42**	**Matrix:**	**WATER**
		Date Received:	**03/14/2018 09:00**		
Client ID:	**B3HMT9**			**Prep Basis:**	**"As Received"**
Batch ID:	**1748118**	**Method:**	**TRITIUM_DIST_LSC**	**SOP Ref:**	**GL-RAD-A-002**
Run Date:	**03/20/2018 19:14**	**Analyst:**	**MXH8**	**Instrument:**	**LSCGREEN**
Data File:	**T1748118.xls**	**Aliquot:**	**50 mL**	**Count Time:**	**50 min**
Prep Batch:	**1748118**	**Prep Method:**	**EPA 906.0 Modified**		
Prep Date:	**03/20/2018 07:29**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		2300	pCi/L	+/-251	510	286	400

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445848**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16046**
Lab Sample ID:	**445848002**	**Date Collected:**	**03/13/2018 09:42**	**Matrix:**	**WATER**
		Date Received:	**03/14/2018 09:00**		
Client ID:	**B3HMV5**			**Prep Basis:**	**"As Received"**
Batch ID:	**1746931**	**Method:**	**DOE EML HASL-300,I-01 Mo**	**SOP Ref:**	**GL-RAD-A-006**
Run Date:	**03/19/2018 08:12**	**Analyst:**	**BSW1**	**Instrument:**	**XRAY1**
Data File:	**I445848002.CNF;1**	**Aliquot:**	**1.2 L**	**Count Time:**	**120 min**
Prep Batch:	**1746931**	**Prep Method:**	**DOE EML HASL-300,I-01 M**		
Prep Date:	**03/15/2018 11:17**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	X	0.904	pCi/L	+/-0.540	0.548	0.399	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445848**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16046**
Lab Sample ID:	**445848002**	**Date Collected:**	**03/13/2018 09:42**	**Matrix:**	**WATER**
		Date Received:	**03/14/2018 09:00**		
Client ID:	**B3HMV5**			**Prep Basis:**	**"As Received"**
Batch ID:	**1747308**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/26/2018 08:30**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCMOCHA**
Data File:	**E1747308R.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**25 min**
Prep Batch:	**1747308**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/20/2018 16:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		55.6	pCi/L	+/-19.9	20.8	31.2	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	27300	28800	CPM	94.9	(30%-105%)

Comments:

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445848**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16046**
Lab Sample ID:	**445848002**	**Date Collected:**	**03/13/2018 09:42**	**Matrix:**	**WATER**
		Date Received:	**03/14/2018 09:00**		
Client ID:	**B3HMV5**			**Prep Basis:**	**"As Received"**
Batch ID:	**1748118**	**Method:**	**TRITIUM_DIST_LSC**	**SOP Ref:**	**GL-RAD-A-002**
Run Date:	**03/20/2018 20:06**	**Analyst:**	**MXH8**	**Instrument:**	**LSCGREEN**
Data File:	**T1748118.xls**	**Aliquot:**	**50 mL**	**Count Time:**	**50 min**
Prep Batch:	**1748118**	**Prep Method:**	**EPA 906.0 Modified**		
Prep Date:	**03/20/2018 07:29**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		2670	pCi/L	+/-258	578	279	400

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445848**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16046**
Lab Sample ID:	**445848003**	**Date Collected:**	**03/13/2018 08:02**	**Matrix:**	**WATER**
		Date Received:	**03/14/2018 09:00**		
Client ID:	**B3HXR1**			**Prep Basis:**	**"As Received"**
Batch ID:	**1746931**	**Method:**	**DOE EML HASL-300,I-01 Mo**	**SOP Ref:**	**GL-RAD-A-006**
Run Date:	**03/19/2018 08:12**	**Analyst:**	**BSW1**	**Instrument:**	**XRAY4**
Data File:	**I445848003.CNF;1**	**Aliquot:**	**1.2 L**	**Count Time:**	**120 min**
Prep Batch:	**1746931**	**Prep Method:**	**DOE EML HASL-300,I-01 M**		
Prep Date:	**03/15/2018 11:17**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	U	0.615	pCi/L	+/-0.536	0.539	0.775	1.00

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.

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Sample Summary

SDG Number:	**GEL445848**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16046**
Lab Sample ID:	**445848003**	**Date Collected:**	**03/13/2018 08:02**	**Matrix:**	**WATER**
		Date Received:	**03/14/2018 09:00**		
Client ID:	**B3HXR1**			**Prep Basis:**	**"As Received"**
Batch ID:	**1747308**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/26/2018 08:57**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCMOCHA**
Data File:	**E1747308R.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**25 min**
Prep Batch:	**1747308**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/20/2018 16:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		3010	pCi/L	+/-65.4	340	32.5	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	26700	28800	CPM	92.7	(30%-105%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445848**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16046**
Lab Sample ID:	**445848003**	**Date Collected:**	**03/13/2018 08:02**	**Matrix:**	**WATER**
		Date Received:	**03/14/2018 09:00**		
Client ID:	**B3HXR1**			**Prep Basis:**	**"As Received"**
Batch ID:	**1748118**	**Method:**	**TRITIUM_DIST_LSC**	**SOP Ref:**	**GL-RAD-A-002**
Run Date:	**03/20/2018 20:58**	**Analyst:**	**MXH8**	**Instrument:**	**LSCGREEN**
Data File:	**T1748118.xls**	**Aliquot:**	**50 mL**	**Count Time:**	**50 min**
Prep Batch:	**1748118**	**Prep Method:**	**EPA 906.0 Modified**		
Prep Date:	**03/20/2018 07:29**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		1970	pCi/L	+/-239	450	284	400

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

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Sample Summary

SDG Number:	**GEL445848**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16046**
Lab Sample ID:	**445848010**	**Date Collected:**	**03/13/2018 09:15**	**Matrix:**	**WATER**
		Date Received:	**03/14/2018 09:00**		
Client ID:	**B3HXR7**			**Prep Basis:**	**"As Received"**
Batch ID:	**1746931**	**Method:**	**DOE EML HASL-300,I-01 Mo**	**SOP Ref:**	**GL-RAD-A-006**
Run Date:	**03/19/2018 08:13**	**Analyst:**	**BSW1**	**Instrument:**	**XRAY6**
Data File:	**I445848010.CNF;1**	**Aliquot:**	**1.2 L**	**Count Time:**	**120 min**
Prep Batch:	**1746931**	**Prep Method:**	**DOE EML HASL-300,I-01 M**		
Prep Date:	**03/15/2018 11:17**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129		1.34	pCi/L	+/-0.805	0.816	0.473	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445848**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16046**
Lab Sample ID:	**445848010**	**Date Collected:**	**03/13/2018 09:15**	**Matrix:**	**WATER**
		Date Received:	**03/14/2018 09:00**		
Client ID:	**B3HXR7**			**Prep Basis:**	**"As Received"**
Batch ID:	**1747308**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/26/2018 09:23**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCMOCHA**
Data File:	**E1747308R.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**25 min**
Prep Batch:	**1747308**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/20/2018 16:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		678	pCi/L	+/-36.8	83.8	34.9	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	24900	28800	CPM	86.7	(30%-105%)

Comments:

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

The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445848**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16046**
Lab Sample ID:	**445848010**	**Date Collected:**	**03/13/2018 09:15**	**Matrix:**	**WATER**
		Date Received:	**03/14/2018 09:00**		
Client ID:	**B3HXR7**			**Prep Basis:**	**"As Received"**
Batch ID:	**1748118**	**Method:**	**TRITIUM_DIST_LSC**	**SOP Ref:**	**GL-RAD-A-002**
Run Date:	**03/20/2018 21:50**	**Analyst:**	**MXH8**	**Instrument:**	**LSCGREEN**
Data File:	**T1748118.xls**	**Aliquot:**	**50 mL**	**Count Time:**	**50 min**
Prep Batch:	**1748118**	**Prep Method:**	**EPA 906.0 Modified**		
Prep Date:	**03/20/2018 07:29**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		2970	pCi/L	+/-273	636	288	400

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445848**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16046**
Lab Sample ID:	**445848011**	**Date Collected:**	**03/13/2018 08:28**	**Matrix:**	**WATER**
		Date Received:	**03/14/2018 09:00**		
Client ID:	**B3HXT8**			**Prep Basis:**	**"As Received"**
Batch ID:	**1746931**	**Method:**	**DOE EML HASL-300,I-01 Mo**	**SOP Ref:**	**GL-RAD-A-006**
Run Date:	**03/20/2018 06:09**	**Analyst:**	**BSW1**	**Instrument:**	**XRAY6**
Data File:	**I445848011.CNF;3**	**Aliquot:**	**1.2 L**	**Count Time:**	**135 min**
Prep Batch:	**1746931**	**Prep Method:**	**DOE EML HASL-300,I-01 M**		
Prep Date:	**03/15/2018 11:17**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	X	1.08	pCi/L	+/-1.01	1.02	0.987	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445848**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16046**
Lab Sample ID:	**445848011**	**Date Collected:**	**03/13/2018 08:28**	**Matrix:**	**WATER**
		Date Received:	**03/14/2018 09:00**		
Client ID:	**B3HXT8**			**Prep Basis:**	**"As Received"**
Batch ID:	**1747308**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/26/2018 09:50**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCMOCHA**
Data File:	**E1747308R.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**25 min**
Prep Batch:	**1747308**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/20/2018 16:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		69.4	pCi/L	+/-21.1	22.4	32.6	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	26300	28800	CPM	91.4	(30%-105%)

Comments:

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445848**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16046**
Lab Sample ID:	**445848011**	**Date Collected:**	**03/13/2018 08:28**	**Matrix:**	**WATER**
		Date Received:	**03/14/2018 09:00**		
Client ID:	**B3HXT8**			**Prep Basis:**	**"As Received"**
Batch ID:	**1748118**	**Method:**	**TRITIUM_DIST_LSC**	**SOP Ref:**	**GL-RAD-A-002**
Run Date:	**03/20/2018 22:43**	**Analyst:**	**MXH8**	**Instrument:**	**LSCGREEN**
Data File:	**T1748118.xls**	**Aliquot:**	**50 mL**	**Count Time:**	**50 min**
Prep Batch:	**1748118**	**Prep Method:**	**EPA 906.0 Modified**		
Prep Date:	**03/20/2018 07:29**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		3240	pCi/L	+/-280	686	288	400

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445848**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16046**
Lab Sample ID:	**445848014**	**Date Collected:**	**03/13/2018 08:12**	**Matrix:**	**WATER**
		Date Received:	**03/14/2018 09:00**		
Client ID:	**B3HXT0**			**Prep Basis:**	**"As Received"**
Batch ID:	**1747308**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/26/2018 10:16**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCMOCHA**
Data File:	**E1747308R.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**25 min**
Prep Batch:	**1747308**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/20/2018 16:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		113	pCi/L	+/-22.3	25.6	32.5	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	26700	28800	CPM	92.8	(30%-105%)

Comments:

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

The MDC is a sample specific MDC.

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445848**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16046**
Lab Sample ID:	**445848015**	**Date Collected:**	**03/13/2018 08:17**	**Matrix:**	**WATER**
		Date Received:	**03/14/2018 09:00**		
Client ID:	**B3HXT2**			**Prep Basis:**	**"As Received"**
Batch ID:	**1747308**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/25/2018 12:29**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCMOCHA**
Data File:	**E1747308R.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**25 min**
Prep Batch:	**1747308**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/20/2018 16:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99	U	19.1	pCi/L	+/-21.4	21.6	36.0	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	25300	28800	CPM	87.8	(30%-105%)

Comments:

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

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Certificate of Analysis
Sample Summary

SDG Number:	**GEL445848**	**Client:**	**CPRC001**	**Project:**	**CPRC0F16046**
Lab Sample ID:	**445848016**	**Date Collected:**	**03/13/2018 08:23**	**Matrix:**	**WATER**
		Date Received:	**03/14/2018 09:00**		
Client ID:	**B3HXT4**			**Prep Basis:**	**"As Received"**
Batch ID:	**1747308**	**Method:**	**TC99_EIE_LSC**	**SOP Ref:**	**GL-RAD-A-059**
Run Date:	**03/26/2018 10:43**	**Analyst:**	**TXJ1**	**Instrument:**	**LSCMOCHA**
Data File:	**E1747308R.xls**	**Aliquot:**	**100 mL**	**Count Time:**	**25 min**
Prep Batch:	**1747308**	**Prep Method:**	**DOE EML HASL-300, Tc-02-**		
Prep Date:	**03/20/2018 16:00**				

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		75.1	pCi/L	+/-21.3	22.9	32.7	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	26700	28800	CPM	92.9	(30%-105%)

Comments:

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

Report Date: March 27, 2018
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Client : **CH2MHill Plateau Remediation Company**
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352

Contact: **Mr. Scot Fitzgerald**

Workorder: **445848**

Parmname	NOM		Sample	Qual	QC	Units	QC Criteria		Range	Analyst	Date Time
Rad Gamma Spec											
Batch 1746931											
QC1203989189 MB											
Iodine-129				U	0.117	pCi/L				BSW1	03/19/18 08:30
Uncert:					+/-0.270						
TPU:					+/-0.276						
QC1203989190 445713001 DUP											
Iodine-129		U	0.269	U	0.00897	pCi/L					03/19/18 09:01
Uncert:			+/-0.443		+/-0.287		RPD:	0	N/A		
TPU:			+/-0.444		+/-0.287		RER:	0.963	(0-2)		
QC1203989191 445713001 MS											
Iodine-129	34.7	U	0.269		32.5	pCi/L	REC:	94	(75%-125%)		03/19/18 10:27
Uncert:			+/-0.443		+/-4.04						
TPU:			+/-0.444		+/-5.17						
QC1203989192 LCS											
Iodine-129	34.7				33.8	pCi/L	REC:	98	(80%-120%)		03/19/18 10:27
Uncert:					+/-5.75						
TPU:					+/-6.67						
Rad Liquid Scintillation											
Batch 1747308											
QC1203989890 MB											
Technetium-99				U	-14.7	pCi/L				TXJ1	03/25/18 13:22
Uncert:					+/-19.7						
TPU:					+/-19.7						
**Technetium-99m Tracer	28800				26300	CPM	REC:	91	(30%-105%)		
QC1203989891 445848001 DUP											
Technetium-99			62.4		65.9	pCi/L					03/26/18 11:09
Uncert:			+/-26.4		+/-24.5		RPD:	6	(0% - 100%)		
TPU:			+/-27.3		+/-25.5		RER:	0.186	(0-2)		
**Technetium-99m Tracer	28800		20900		22800	CPM	REC:	79	(30%-105%)		
QC1203989892 LCS											
Technetium-99	888				857	pCi/L	REC:	97	(80%-120%)		03/25/18 14:15
Uncert:					+/-39.1						
TPU:					+/-103						
**Technetium-99m Tracer	28800				26900	CPM	REC:	93	(30%-105%)		
Batch 1748118											
QC1203991696 MB											
Tritium				U	-47.2	pCi/L				MXH8	03/21/18 04:53
Uncert:					+/-162						
TPU:					+/-162						
QC1203991697 445848001 DUP											
Tritium			2300		2580	pCi/L					03/21/18 05:45
Uncert:			+/-251		+/-256		RPD:	12	(0%-20%)		
TPU:			+/-510		+/-561		RER:	0.727	(0-2)		
QC1203991698 445848001 MS											
Tritium	5140		2300		6460	pCi/L	REC:	81	(75%-125%)		03/21/18 06:37

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

QC Summary

Workorder: **445848**

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Liquid Scintillation									
Batch 1748118									
	Uncert:	+/-251		+/-542					
	TPU:	+/-510		+/-1360					
QC1203991699 LCS									
Tritium	2570			2540	pCi/L	REC: 99	(80%-120%)		03/21/18 07:29
	Uncert:			+/-261					
	TPU:			+/-556					

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
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 the associated method blank >/= MDC or >5% sample activity.
C	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.
D	Results are reported from a diluted aliquot of sample.
E	Reported value is estimated due to interferences. See comment in narrative.
M	Duplicate precision not met.
N	Spike Sample recovery is outside control limits.
S	Reported value determined by the Method of Standard Additions (MSA)
U	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
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

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.