

7/21/2016



July 21, 2016

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

Re: CHPRC SAF F16-058
Work Order: 401112
SDG: GEL401112

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on July 08, 2016. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

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

Sincerely,

B Luthman
Brielle Luthman for
Heather Shaffer
Project Manager

Purchase Order: 303110 - 7C
Chain of Custody: F16-058-001, F16-058-002, F16-058-003 and F16-058-004
Enclosures



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Case Narrative

**General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF F16-058
SDG: GEL401112**

July 21, 2016

Laboratory Identification:

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

Summary

Sample receipt

The sample(s) arrived at GEL Laboratories, LLC, Charleston, South Carolina on July 08, 2016, for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

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

Sample Identification

The laboratory received the following samples:

<u>Laboratory Identification</u>	<u>Sample Description</u>
401112001	B366M3
401112002	B366M6
401112003	B366M2
401112004	B366M5

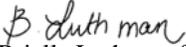
Case Narrative

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 and Metals.

We certify that this package is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager (or designee) and the laboratory's client services representative as verified by their signatures on this report.


Brielle Luthman for
Heather Shaffer
Project Manager

Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL401112
Work Order #: 401112

Metals

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

pH

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

Holding Times

Samples (See Below) were received by the laboratory outside of the method specified holding time. The data is qualified.

Sample	Analyte	Value
1203581448 (B366M3DUP)	pH	Received 08-JUL-16, out of holding 07-JUL-16
401112001 (B366M3)	pH	Received 08-JUL-16, out of holding 07-JUL-16
401112002 (B366M6)	pH	Received 08-JUL-16, out of holding 07-JUL-16

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		F16-058-002	PAGE 1 OF 1
COLLECTOR Frank Heil /CHPRC	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR SUMNER, LC	PRICE CODE 7C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Pre Clean source	PROJECT DESIGNATION 200 West Pump & Treat - Eyewash Sampling - Water	ACTUAL SAMPLE DEPTH N/A	SAF NO. F16-058	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT FEDERAL EXPRESS
ICE CHEST NO. GWS-515	FIELD LOGBOOK NO. HNF-N-507-34	COA 303110	BILL OF LADING/AIR BILL NO. 7760094617793		
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 46807	40112			

MATRIX*	PRESERVATION	None
A=Air	HOLDING TIME	ASAP
DL=Drum	TYPE OF CONTAINER	P
Liquids	NO. OF CONTAINER(S)	1
DS=Drum	VOLUME	125ml
Solids	SAMPLE ANALYSIS	9040_pH (AQUEOUS); COMMON;
L=Liquid	SAMPLE DATE	JUL 07 2016
O=Oil	SAMPLE TIME	0919
S=Soil		
SE=Sediment		
T=Tissue		
V=Vegetation		
W=Water		
WL=Wipe		
X=Other		
SAMPLE NO. B366M3	MATRIX*	WATER

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM Frank Heil /CHPRC	DATE/TIME JUL 07 2016 0934	RECEIVED BY/STORED IN Janelle Zunker CHPRC	DATE/TIME JUL 07 2016 0936		
RELINQUISHED BY/REMOVED FROM Janelle Zunker CHPRC	DATE/TIME JUL 07 2016 0945	RECEIVED BY/STORED IN Swith CHPRC	DATE/TIME JUL 07 2016 0946		
RELINQUISHED BY/REMOVED FROM Janelle Zunker CHPRC	DATE/TIME JUL 07 2016 1100	RECEIVED BY/STORED IN Janelle Zunker CHPRC	DATE/TIME JUL 07 2016 1100		
RELINQUISHED BY/REMOVED FROM Janelle Zunker CHPRC	DATE/TIME JUL 07 2016 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME JUL 07 2016 1400		
RELINQUISHED BY/REMOVED FROM Frank Heil /CHPRC	DATE/TIME JUL 07 2016 1400	RECEIVED BY/STORED IN M. Koston Hill Kuber 7-816	DATE/TIME JUL 07 2016 0910		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	
PRINTED ON 6/29/2016		FSR ID = FSR33927		TRVL NUM = TRVL-16-188	
				A-6003-618 (REV 2)	

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F16-058-003	PAGE 1 OF 1
COLLECTOR Frank Mat CHPRC	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR SUMNER, LC	PRICE CODE 7C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Safety Eyewash	PROJECT DESIGNATION 200 West Pump & Treat - Eyewash Sampling - Water	ACTUAL SAMPLE DEPTH N/A	SAF NO. F16-058	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT FEDERAL EXPRESS
ICE CHEST NO. 6WS-515	FIELD LOGBOOK NO. HNF-N-507-34	COA 303110	BILL OF LADING/AIR BILL NO. 77604 944617793		
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6607	461112			

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	HNO3 to pH
A=Air DL=Drum L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*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	<2
		TYPE OF CONTAINER	6 Months
		NO. OF CONTAINER(S)	G/P
		VOLUME	1
		SAMPLE ANALYSIS	250ml
		SPECIAL HANDLING AND/OR STORAGE	6020_METALS, ICPMS: COMMON (Lead);
SAMPLE NO. B366M5	MATRIX* WATER	SAMPLE DATE JUL 07 2016	SAMPLE TIME 0924

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM Frank Mat CHPRC	RECEIVED BY/STORED IN Janelle Zunker CHPRC	DATE/TIME JUL 07 2016 0924
RELINQUISHED BY/REMOVED FROM Janelle Zunker CHPRC	RECEIVED BY/STORED IN SSU#1	DATE/TIME JUL 07 2016 0945
RELINQUISHED BY/REMOVED FROM Janelle Zunker CHPRC	RECEIVED BY/STORED IN Janelle Zunker CHPRC	DATE/TIME JUL 07 2016 1155
RELINQUISHED BY/REMOVED FROM Janelle Zunker CHPRC	RECEIVED BY/STORED IN FEDEX	DATE/TIME
RELINQUISHED BY/REMOVED FROM Janelle Zunker CHPRC	RECEIVED BY/STORED IN M. Foster	DATE/TIME JUL 07 2016 0910
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME
LABORATORY SECTION	RECEIVED BY	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DATE/TIME

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F16-058-004	PAGE 1 OF 1
COLLECTOR Frank Heil /CHPRC	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR SUMNER, LC	PRICE CODE 7C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Safety Eyewash	PROJECT DESIGNATION 200 West Pump & Treat - Eyewash Sampling - Water	ACTUAL SAMPLE DEPTH N/A	SAF NO. F16-058	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT FEDERAL EXPRESS
ICE CHEST NO. 6WS-515	FIELD LOGBOOK NO. HNF-N-507-34	OFFSITE PROPERTY NO. 4807	COA 303110	BILL OF LADING/AIR BILL NO. 7760 9461 7793	
SHIPPED TO GEL Laboratories, LLC	ORIGINAL				

MATRIX*	None
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.	ASAP
PRESERVATION	P
HOLDING TIME	1
TYPE OF CONTAINER	125ml
NO. OF CONTAINER(S)	9040_pH (AQUEOUS); COMMON;
VOLUME	
SAMPLE ANALYSIS	
SPECIAL HANDLING AND/OR STORAGE	
SAMPLE NO.	MATRIX*
B366M6	WATER
	SAMPLE DATE
	SAMPLE TIME
	0929
	JUL 07 2016
	0945

401112

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM Frank Heil /CHPRC	RECEIVED BY/STORED IN Janelle Zunker CHPRC	DATE/TIME JUL 07 2016 0945
RELINQUISHED BY/REMOVED FROM Janelle Zunker	RECEIVED BY/STORED IN SSD/H	DATE/TIME JUL 07 2016 0945
RELINQUISHED BY/REMOVED FROM Janelle Zunker	RECEIVED BY/STORED IN Janelle Zunker CHPRC	DATE/TIME JUL 07 2016 115
RELINQUISHED BY/REMOVED FROM Janelle Zunker	RECEIVED BY/STORED IN FEDEX	DATE/TIME
RELINQUISHED BY/REMOVED FROM Janelle Zunker	RECEIVED BY/STORED IN McKinstry, J. H.	DATE/TIME 7-8-16 0940
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME
PRINTED ON 6/29/2016	FSR ID = FSR33928	TRVL NUM = TRVL-16-188	A-6003-618 (REV 2)



Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: <u>CPAC</u>		SDG/AR/COC/Work Order:	
Received By: <u>mk</u>		Date Received: <u>7-8-16</u>	
Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?			Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>cpm 0</u>
Classified Radioactive II or III by RSO?			If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?			
Package, COC, and/or Samples marked as beryllium or asbestos containing?			If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?			Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?			

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius
2a Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>			Temperature Device Serial #: <u>2C</u> Secondary Temperature Device Serial # (if Applicable): <u>134412907</u>
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4 Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>			Sample ID's, containers affected and observed pH: (If Preservation added, Lot#:
6 Do Low Level Perchlorate samples have headspace as required?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
7 VOA vials contain acid preservation?	<input checked="" type="checkbox"/>			(If unknown, select No)
8 VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
9 Are Encore containers present?	<input checked="" type="checkbox"/>			(If yes, immediately deliver to Volatiles laboratory)
10 Samples received within holding time?	<input checked="" type="checkbox"/>			ID's and tests affected:
11 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
12 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
13 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
14 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>			
15 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			
16 Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other <u>7766 9461 7793</u>

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials EM Date 7/11/16 Page 1 of 1

Data Review Qualifier Definitions

Project Specific Qualifier Definitions for GEL Client Code: CPRC

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

Laboratory Certifications

List of current GEL Certifications as of 21 July 2016

State	Certification
Alaska	UST-0110
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA160006
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122016-1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-16-11
Utah NELAP	SC000122016-20
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL401112
Work Order #: 401112

Product: Determination of Metals by ICP-MS**Analytical Method:** 6020_METALS_ICPMS**Analytical Procedure:** GL-MA-E-014 REV# 28**Analytical Batch:** 1580381**Preparation Method:** SW846 3005A**Preparation Procedure:** GL-MA-E-006 REV# 13**Preparation Batch:** 1580380

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
401112003	B366M2
401112004	B366M5
1203581533	Method Blank (MB)ICP-MS
1203581534	Laboratory Control Sample (LCS)
1203581537	401105001(NonSDGL) Serial Dilution (SD)
1203581535	401105001(NonSDGS) Matrix Spike (MS)
1203581536	401105001(NonSDGSD) Matrix Spike Duplicate (MSD)

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.

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: GEL401112 GEL Work Order: 401112

The Qualifiers in this report are defined as follows:

- * Duplicate analysis not within control limits
- D Results are reported from a diluted aliquot of sample.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

Review/Validation

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

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

Signature: 

Name: Jamie Johnson

Date: 20 JUL 2016

Title: Group Leader

Sample Data Summary

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL401112

CONTRACT: CPRC0F16058

METHOD TYPE: SW846

SAMPLE ID:401112003

BASIS: As Received

DATE COLLECTED 07-JUL-16

CLIENT ID: B366M2

LEVEL: Low

DATE RECEIVED 08-JUL-16

MATRIX: WATER

%SOLIDS: 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-92-1	Lead	84.9	ug/L		0.5	2	2	1	MS	SKJ	07/18/16 15:26	160718-1	1580381

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1580381	1580380	SW846 3005A	50	mL	50	mL	07/08/16	JP1

***Analytical Methods:**

MS SW846 3005A/6020A

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL401112

CONTRACT: CPRC0F16058

METHOD TYPE: SW846

SAMPLE ID:401112004

BASIS: As Received

DATE COLLECTED 07-JUL-16

CLIENT ID: B366M5

LEVEL: Low

DATE RECEIVED 08-JUL-16

MATRIX: WATER

%SOLIDS: 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-92-1	Lead	2.24	ug/L		0.5	2	2	1	MS	SKJ	07/18/16 15:30	160718-1	1580381

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1580381	1580380	SW846 3005A	50	mL	50	mL	07/08/16	JP1

***Analytical Methods:**

MS SW846 3005A/6020A

Quality Control Summary

GEL LABORATORIES LLC

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

QC Summary

Report Date: July 20, 2016

Page 1 of 2

CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 401112

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1580381										
QC1203581534	LCS										
Lead	50.0			51.3	ug/L		103	(80%-120%)	SKJ	07/18/16	14:43
QC1203581533	MB										
Lead			U	0.500	ug/L					07/18/16	14:39
QC1203581535	401105001	MS									
Lead	50.0	U	0.500	48.8	ug/L		97.7	(75%-125%)		07/18/16	14:50
QC1203581536	401105001	MSD									
Lead	50.0	U	0.500	50.4	ug/L	3.23	101	(0%-20%)		07/18/16	14:54
QC1203581537	401105001	SDILT									
Lead		U	0.007 DU	2.50	ug/L	N/A		(0%-10%)		07/18/16	15:02

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

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QC Summary

Workorder: 401112

Page 2 of 2

Parmname	NOM	Sample Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
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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
CH2M Hill Plateau Remediation Company (CPRC)
SDG #: GEL401112
Work Order #: 401112**

Product: pH**Analytical Method:** SW846 9040C**Analytical Procedure:** GL-GC-E-008 REV# 21**Analytical Batch:** 1580346

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
401112001	B366M3
401112002	B366M6
1203581445	Laboratory Control Sample (LCS)
1203581448	401112001(B366M3) 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**Holding Times**

Samples (See Below) were received by the laboratory outside of the method specified holding time. The data is qualified.

Sample	Analyte	Value
1203581448 (B366M3DUP)	pH	Received 08-JUL-16, out of holding 07-JUL-16
401112001 (B366M3)	pH	Received 08-JUL-16, out of holding 07-JUL-16
401112002 (B366M6)	pH	Received 08-JUL-16, out of holding 07-JUL-16

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: GEL401112 GEL Work Order: 401112

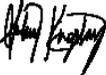
The Qualifiers in this report are defined as follows:

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: 

Name: Aubrey Kingsbury

Date: 19 JUL 2016

Title: Analyst I

Sample Data Summary

7/21/2016

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Certificate of Analysis

Report Date: July 19, 2016

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF F16-058

Client Sample ID:	B366M3	Project:	CPRC0F16058
Sample ID:	401112001	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	07-JUL-16 09:19		
Receive Date:	08-JUL-16		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Titration and Ion Analysis												
9040_pH (AQUEOUS): COMMON "As Received"												
pH at Temp 24.0C	X	7.80	0.010	0.100	SU		1	RXB5	07/08/16	1645	1580346	1

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	SW846 9040C		

Notes:

7/21/2016

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: July 19, 2016

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF F16-058

Client Sample ID:	B366M6	Project:	CPRC0F16058
Sample ID:	401112002	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	07-JUL-16 09:24		
Receive Date:	08-JUL-16		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Titration and Ion Analysis												
9040_pH (AQUEOUS): COMMON "As Received"												
pH at Temp 24.4C	X	7.85	0.010	0.100	SU		1	RXB5	07/08/16	1657	1580346	1

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	SW846 9040C		

Notes:

Quality Control Summary

GEL LABORATORIES LLC

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

QC Summary

Report Date: July 19, 2016

CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 401112

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Titration and Ion Analysis											
Batch	1580346										
QC1203581448		401112001	DUP								
pH	X	7.80	X	7.80	SU	0.0434		(0%-5%)	RXB5	07/08/16	16:51
QC1203581445		LCS									
pH	7.00			7.00	SU		100	(80%-120%)		07/08/16	15:31

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.