



June 21, 2017

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

Re: CHPRC SAF F16-037  
Work Order: 425609  
SDG: GEL425609

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 16, 2017. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

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

Sincerely,

*B Luthman*  
Brielle Luthman for  
Heather Shaffer  
Project Manager

Purchase Order: 300085 - 8C  
Chain of Custody: F16-037-108  
Enclosures



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# Case Narrative

June 26, 2017

General Narrative  
for  
CH2MHill Plateau Remediation Company  
CHPRC SAF F16-037  
SDG: GEL425609

June 21, 2017

**Laboratory Identification:**

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

**Summary**

**Sample receipt**

The sample(s) arrived at GEL Laboratories, LLC, Charleston, South Carolina on June 16, 2017, for analysis. The sample was 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 sample:

<b>Laboratory Identification</b>	<b>Sample Description</b>
425609001	B39K47

**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.

June 26, 2017

*B. Luthman*  
Brielle Luthman for  
Heather Shaffer  
Project Manager

June 26, 2017

Technical Case Narrative  
CH2MHill Plateau Remediation Company (CPRC)  
SDG #: GEL425609  
Work Order #: 425609

## Metals

### Determination of Metals by ICP-MS

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

### Technical Information

#### Sample Dilutions

The ICPMS solid samples in this SDG were diluted the standard two times.

Analyte	425609
	001
Chromium	2X

## General Chemistry

### Hexavalent Chromium

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

### Dry Weight

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.

# **Chain of Custody and Supporting Documentation**

June 26, 2017

87 LBS.

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F16-037-108	PAGE 1 OF 1
COLLECTOR Roger Friesz Jr. /CHPRC	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION C9713, I-006	PROJECT DESIGNATION 100-KR-4 Long Term & Interim Action Monitoring - Soil	FIELD LOGBOOK NO. HNF-N-645 4-86	SAF NO. F16-037	AIR QUALITY	METHOD OF SHIPMENT FEDERAL EXPRESS
ICE CHEST NO. GWS-618	OFFSITE PROPERTY NO. 8053	ACTUAL SAMPLE DEPTH 170.9-173.9 FT	COA 300085		ORIGINAL
SHIPPED TO GEL Laboratories, LLC	BILL OF LADING/AIR BILL NO. 779415203402				

MATRIX* A=Air DL=Drum L=Liquids DS=Drum S=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.	PRESERVATION Cool <=6C	None
		HOLDING TIME 30 Days	6 Months
		TYPE OF CONTAINER G/P	G/P
		NO. OF CONTAINER(S) 1	1
		VOLUME 125ml	60ml
		SAMPLE ANALYSIS 7196.C06: COMMON; 6020.METALS: COMMON {Chromium};	
SPECIAL HANDLING AND/OR STORAGE NA			

SAMPLE NO. B39K47	MATRIX* SOIL	SAMPLE DATE JUN 15 2017	SAMPLE TIME 0900
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CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM Roger Friesz Jr. /CHPRC	DATE/TIME JUN 15 2017 1300	RECEIVED BY/STORED IN Leahy West /CHPRC	DATE/TIME JUN 15 2017 1330	TRVL-17-103	
RELINQUISHED BY/REMOVED FROM Leahy West /CHPRC	DATE/TIME JUN 15 2017 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME FED EX	RECEIVED BY/STORED IN AS R - STACT 00006 6 -16-179:Y	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
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 4/26/2017		FSR ID = FSR43533		TRVL NUM = TRVL-17-103	
				A-6003-618 (REV 2)	

June 26, 2017



SAMPLE RECEIPT & REVIEW FORM

Client: <u>CPRC</u>		SDG/AR/COC/Work Order: <u>4256009</u>		
Received By: <u>Stacy Boone</u>		Date Received: <u>16-JUNE-17</u>		
Carrier and Tracking Number		Circle Applicable: FedEx Express    FedEx Ground    UPS    Field Services    Courier    Other <u>7794 1520 3402-1c</u> <u>7794 1593 5896-1c</u> <u>7794 1439 8361-1c</u> <u>7794 1230 5085-1c</u>		
Suspected Hazard Information	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.		
Shipped as a DOT Hazardous?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Hazard Class Shipped:                      UN#:		
COC/Samples marked or classified as radioactive?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u> CPM / mR/Hr Classified as: Rad 1    Rad 2    Rad 3		
Is package, COC, and/or Samples marked HAZ?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	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?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable:    Seals broken    Damaged container    Leaking container    Other (describe)
2 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Preservation Method: <u>Wet Ice</u> Ice Packs    Dry ice    None    Other: *all temperatures are recorded in Celsius,                      TEMP: _____
4 Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>IR3-17</u> Secondary Temperature Device Serial # (If Applicable):
5 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable:    Seals broken    Damaged container    Leaking container    Other (describe)
6 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's and Containers Affected: If Preservation added, Lot#:
7 Do any samples require Volatile Analysis?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	If Yes, Are Encores or Soil Kits present? Yes ___ No <input checked="" type="checkbox"/> (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes <input checked="" type="checkbox"/> No ___ N/A (If unknown, select No) VOA vials free of headspace? Yes <input checked="" type="checkbox"/> No ___ N/A Sample ID's and containers affected:
8 Samples received within holding time?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
12 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Comments (Use Continuation Form if needed):				

PM (or PMA) review: Initials NS Date 6/19/17 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 June 2017

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

# Metals Analysis

# Case Narrative

June 26, 2017

Metals

Technical Case Narrative

CH2MHill Plateau Remediation Company (CPRC)

SDG #: GEL425609

Work Order #: 425609

**Product:** Determination of Metals by ICP-MS

**Analytical Method:** SW846 3050B/6020B

**Analytical Procedure:** GL-MA-E-014 REV# 29

**Analytical Batch:** 1674914

**Preparation Method:** SW846 3050B

**Preparation Procedure:** GL-MA-E-009 REV# 26

**Preparation Batch:** 1674913

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

<b><u>GEL Sample ID#</u></b>	<b><u>Client Sample Identification</u></b>
425609001	B39K47
1203813431	Method Blank (MB)ICP-MS
1203813432	Laboratory Control Sample (LCS)
1203813435	425609001(B39K47L) Serial Dilution (SD)
1203813433	425609001(B39K47D) Sample Duplicate (DUP)
1203813434	425609001(B39K47S) Matrix Spike (MS)

The samples in this SDG were analyzed on a "dry weight" 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.

**Technical Information**

**Preparation/Analytical Method Verification**

Method SW-846 3050B is not a total digestion technique for most samples. It is a very strong acid digestion that will dissolve almost all elements that could become environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

**Sample Dilutions**

Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range. The ICPMS solid samples in this SDG were diluted the standard two times.

June 26, 2017

Analyte	425609
	001
Chromium	2X

**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.

June 26, 2017

**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: GEL425609 GEL Work Order: 425609

**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.

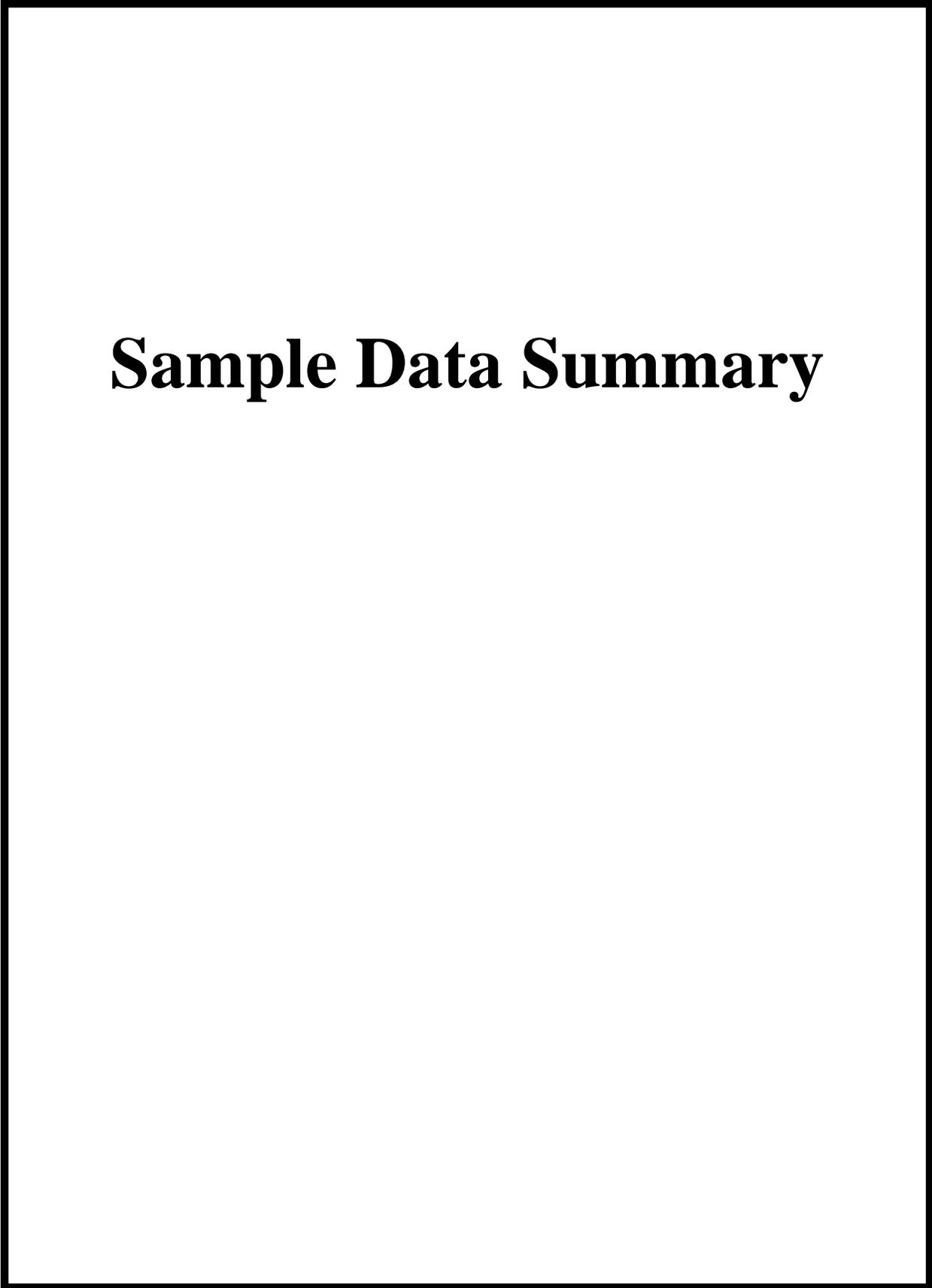
The following data validator verified the information presented in this data report:

**Signature:** 

**Name:** Nik-Cole Elmore

**Date:** 21 JUN 2017

**Title:** Data Validator



# Sample Data Summary

**METALS**  
-1-  
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** GEL425609

**CONTRACT:** CPRC0F16037

**METHOD TYPE:** SW846

**SAMPLE ID:**425609001

**BASIS:** Dry Weight

**DATE COLLECTED** 15-JUN-17

**CLIENT ID:** B39K47

**LEVEL:** Low

**DATE RECEIVED** 16-JUN-17

**MATRIX:** SOIL

**%SOLIDS:** 89

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-47-3	Chromium	17100	ug/kg	D	223	670	10	2	MS	SKJ	06/19/17 22:56	170619-1	1674914

**Prep Information:**

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1674914	1674913	SW846 3050B	0.503	g	50	mL	06/17/17	SXW1

**\*Analytical Methods:**

MS SW846 3050B/6020B

# Quality Control Summary

# June 26, 2017 GEL LABORATORIES LLC

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

## QC Summary

Report Date: June 21, 2017

Page 1 of 2

CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 425609

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
<b>Metals Analysis - ICPMS</b>											
Batch	1674914										
QC1203813433	425609001	DUP									
Chromium		D	17100	D	14800	ug/kg	14.3	(0%-20%)	SKJ	06/19/17	23:00
QC1203813432	LCS										
Chromium	4980			D	5290	ug/kg		106 (80%-120%)		06/19/17	22:52
QC1203813431	MB										
Chromium				DU	199	ug/kg				06/19/17	22:48
QC1203813434	425609001	MS									
Chromium	5110	D	17100	D	21800	ug/kg		90.9 (75%-125%)		06/19/17	23:04
QC1203813435	425609001	SDILT									
Chromium		D	76.6	D	15.9	ug/L	3.78	(0%-20%)		06/19/17	23:12

**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

June 26, 2017

**GEL LABORATORIES LLC**

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

**QC Summary**

Workorder: 425609

Page 2 of 2

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.

June 26, 2017

# General Chem Analysis

# Case Narrative

June 26, 2017

General Chemistry  
Technical Case Narrative  
CH2MHill Plateau Remediation Company (CPRC)  
SDG #: GEL425609  
Work Order #: 425609

**Product: Hexavalent Chromium**

**Analytical Method:** 7196\_CR6

**Analytical Procedure:** GL-GC-E-044 REV# 22

**Analytical Batch:** 1674869

**Preparation Method:** SW846 3060A

**Preparation Procedure:** GL-GC-E-044 REV# 22

**Preparation Batch:** 1674868

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

<b><u>GEL Sample ID#</u></b>	<b><u>Client Sample Identification</u></b>
425609001	B39K47
1203813305	Method Blank (MB)
1203813306	Laboratory Control Sample (LCS)
1203813307	Insoluble Lab Control Sample (ILCS)
1203813309	425609001(B39K47) Sample Duplicate (DUP)
1203813311	425609001(B39K47) Matrix Spike (MS)
1203813315	425609001(B39K47) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on a "dry weight" 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.

June 26, 2017

**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: GEL425609 GEL Work Order: 425609

**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: 22 JUN 2017

Title: Analyst I

# Sample Data Summary

**Certificate of Analysis**

Report Date: June 22, 2017

Company : CH2MHill Plateau Remediation Company  
 Address : MSIN R3-50 CHPRC  
 PO Box 1600  
 Richland, Washington 99352  
 Contact: Mr. Scot Fitzgerald  
 Project: CHPRC SAF F16-037

Client Sample ID: B39K47	Project: CPRC0F16037
Sample ID: 425609001	Client ID: CPRC001
Matrix: SOIL	
Collect Date: 15-JUN-17 09:00	
Receive Date: 16-JUN-17	
Collector: Client	
Moisture: 10.9%	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Spectrometric Analysis												
7196_CR6: COMMON "Dry Weight Corrected"												
Hexavalent Chromium	B	166	113	282	ug/Kg	25.1	1	VH1	06/21/17	1141	1674869	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	RXB5	06/16/17	1421	1674868

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	7196_CR6	

**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

# June 26, 2017 GEL LABORATORIES LLC

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

## QC Summary

Report Date: June 22, 2017

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CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 425609

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Spectrometric Analysis</b>											
Batch	1674869										
QC1203813309	425609001	DUP									
Hexavalent Chromium		B	166	B	191	ug/Kg	13.9 ^	(+/-282)	VH1	06/21/17	11:42
QC1203813307	ILCS										
Hexavalent Chromium	5000				4140	ug/Kg		(80%-120%)		06/21/17	11:33
QC1203813306	LCS										
Hexavalent Chromium	3240				3420	ug/Kg		(80%-120%)		06/21/17	11:33
QC1203813305	MB										
Hexavalent Chromium				U	151	ug/Kg				06/21/17	11:33
QC1203813311	425609001	MS									
Hexavalent Chromium	2670	B	166		2300	ug/Kg		(75%-125%)		06/21/17	11:42
QC1203813315	425609001	MSD									
Hexavalent Chromium	2670	B	166		2270	ug/Kg	1.03	79	(0%-35%)	06/21/17	11:42

**Notes:**

The Qualifiers in this report are defined as follows:

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.