



April 09, 2018

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

Re: CHPRC SAF W18-003  
Work Order: 445810  
SDG: GEL445810

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,

Anna Dupree for  
Heather Shaffer  
Project Manager

Purchase Order: 300071 - 7H  
Chain of Custody: W18-003-098, W18-003-116, W18-003-162, W18-003-186 and W18-003-189  
Enclosures



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# Case Narrative

**General Narrative  
for  
CH2MHill Plateau Remediation Company  
CHPRC SAF W18-003  
SDG: GEL445810**

**April 09, 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:

<b><u>Laboratory Identification</u></b>	<b><u>Sample Description</u></b>
445810001	B3HK05
445810002	B3HK48
445810003	B3HJD5
445810004	B3HK03
445810005	B3HKC3
445810006	B3HJD4
445810007	B3HKC4
445810008	B3HKC2

**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: GC/MS Semivolatile, 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.



Anna Dupree for  
Heather Shaffer  
Project Manager

**Technical Case Narrative**  
**CH2MHill Plateau Remediation Company (CPRC)**  
**SDG #: GEL445810**  
**Work Order #: 445810**

## GC/MS Semivolatile

### **Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**

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

#### Quality Control (QC) Information

##### **Laboratory Control Sample (LCS) Recovery**

The LCS and/or LCSD (See Below) spike recoveries were not within the acceptance limits. The client established the limits of 70%-130%. Failures are expected. The data were reported per client request.

Sample	Analyte	Value
1203989725 (LCS)	2, 4-Dimethylphenol	64* (70%-130%)
	4-Nitrophenol	46* (70%-130%)
	Phenol	62* (70%-130%)

##### **MS/MSD Relative Percent Difference (RPD) Statement**

The relative percent difference (RPD) between the MS and MSD (See Below) did not meet acceptance limits. As the individual MS and MSD recoveries were within the acceptance limits, the failures had no adverse impact on the reported sample data.

Sample	Analyte	Value
1203989726MS and 1203989727MSD (Non SDG 445807002)	2, 4-Dinitrophenol	RPD 38* (0%-20%)
	2-Methyl-4, 6-dinitrophenol	RPD 21* (0%-20%)
	4-Nitrophenol	RPD 34* (0%-20%)

## Metals

### **Determination of Metals by ICP**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and

procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

### **Calibration Information**

#### **CRDL/PQL Requirements**

The PQL standard recoveries for SW846 6010C or 6010D met the control limits with the exception of potassium. Client sample concentrations were less than the MDL or greater than two times the PQL; therefore the data were not adversely affected. 445810004 (B3HK03) and 445810006 (B3HJD4).

#### **Determination of Metals by ICP-MS**

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

### **General Chemistry**

#### **Carbon, Total Organic**

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.

#### **Total Organic Halogens (TOX)**

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.

#### **Total Organic Halogens (TOX)**

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.

#### **Ion Chromatography**

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

applicable, with the following exceptions.

### **Technical Information**

#### **Sample Dilutions**

The following samples 1203989441 (B3HK05DUP), 1203989442 (B3HK05PS), 445810001 (B3HK05) and 445810003 (B3HJD5) were diluted because target analyte concentrations exceeded the calibration range.

Analyte	445810	
	001	003
Chloride	5X	5X
Nitrate	5X	5X
Sulfate	5X	5X

### **Miscellaneous Information**

#### **Manual Integrations**

Samples 1203989440 (LCS), 1203989441 (B3HK05DUP), 1203989442 (B3HK05PS), 445810001 (B3HK05) and 445810003 (B3HJD5) were manually integrated to correctly position the baseline as set in the calibration standards.

#### **Ion Chromatography**

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

### **Technical Information**

#### **Sample Dilutions**

The following samples 1203989452 (Non SDG 445807001DUP) and 1203989453 (Non SDG 445807001PS) were diluted because target analyte concentrations exceeded the calibration range.

### **Miscellaneous Information**

#### **Manual Integrations**

Samples 1203989452 (Non SDG 445807001DUP), 1203989453 (Non SDG 445807001PS) and 445810002 (B3HK48) were manually integrated to correctly position the baseline as set in the calibration standards.

#### **Alkalinity**

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**

Collector: <b>Kathy Turner /CHPRC</b>	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650
SAF No.: W18-003	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071
Project Title: RCRA, MARCH 2018 <span style="float: right; color: blue;">GEL</span>	Logbook No.: HNF-N-506.-77-72	Ice Chest No.: <del>3-13-18</del> <sup>TB</sup> <span style="color: blue;">GWS-681</span>
Shipped To (Lab): <del>TestAmerica Incorporated, Rich</del>	Method of Shipment GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.: <del>3-13-18</del> <sup>TLD</sup> <span style="color: blue;">78002100CSA</span>
Protocol RCRA <span style="float: right; color: blue;">KS 3/8/18</span>	Priority: 30 Days	Offsite Property No.: <del>3-13-18</del> <sup>TLR</sup> <span style="color: blue;">9151</span>

<b>POSSIBLE SAMPLE HAZARDS/REMARK</b> ** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1	<b>SPECIAL INSTRUCTIONS</b> N/A
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Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3HK05	N		<del>MAR 12 2018</del> <span style="color: blue;">MAR 12 2018</span>	<del>1236</del> <span style="color: blue;">1435</span>	1x125-mL P	300.0_ANIONS_IC: COMMON	48 Hours	Cool <=6C

Relinquished By: <b>Kathy Turner</b> <span style="float: right; color: blue;">MAR 12 2018 1435</span> <small>Print First and Last Name Signature Date/Time</small>	Received By: <b>SSU-1</b> <span style="float: right; color: blue;">MAR 12 2018 1435</span> <small>Print First and Last Name Signature Date/Time</small>	Matrix * S = Soil      DS = Drum Solids SE = Sediment   DL = Drum Liquid SO = Solid      T = Tissue SL = Sludge      WI = Wipe W = Water      L = Liquid O = Oil          V = Vegetation A = Air          X = Other
Relinquished By: <b>SSU-1</b> <span style="float: right; color: blue;">MAR 13 2018 0645</span> <small>Print First and Last Name Signature Date/Time</small>	Received By: <b>Troy Bacon</b> <span style="float: right; color: blue;">MAR 13 2018 0645</span> <small>Print First and Last Name Signature Date/Time</small>	
Relinquished By: <b>Troy Bacon</b> <span style="float: right; color: blue;">MAR 13 2018 1400</span> <small>Print First and Last Name Signature Date/Time</small>	Received By: <b>FEDEX</b> <span style="float: right; color: blue;">MAR 13 2018 0900</span> <small>Print First and Last Name Signature Date/Time</small>	
Relinquished By: <b>Fed Ex</b> <span style="float: right; color: blue;">3/14/18 0900</span> <small>Print First and Last Name Signature Date/Time</small>	Received By: <b>Chakeris Tarrin</b> <span style="float: right; color: blue;">3/14/18 0900</span> <small>Print First and Last Name Signature Date/Time</small>	
<b>FINAL SAMPLE DISPOSITION</b> Disposal Method (e.g., Return to customer, per lab procedure, used in process):		Disposed By: _____ Date/Time: _____

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Collector: <del>Juan Aguilar</del> <small>ICHPRC</small>	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650
SAF No.: W18-003	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071
Project Title: RCRA, MARCH 2018 <span style="margin-left: 50px;">GEL</span>	Logbook No.: HNF-N-506 -98/56	Ice Chest No.: <sup>TLB</sup> <del>WLA</del> 3-13-18 <span style="margin-left: 20px;">GWS-739</span>
Shipped To (Lab): <u>TestAmerica Incorporated, Rich</u>	Method of Shipment: GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.: <sup>TLB</sup> <del>N/A</del> 3-13-18 <span style="margin-left: 20px;">780029406792</span>
Protocol: RCRA <span style="margin-left: 50px;">IS 3/8/18</span>	Priority: 30 Days	Offsite Property No.: <sup>TLB</sup> <del>N/A</del> 3-13-18 <span style="margin-left: 20px;">9159</span>

<b>POSSIBLE SAMPLE HAZARDS/REMARK</b> ** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1	<b>SPECIAL INSTRUCTIONS</b> N/A
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Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3HK48	N	W	3-13-18	0823	1x125-mL P	300.0_ANIONS_IC: COMMON	48 Hours	Cool <=6C

Relinquished By: <del>Juan Aguilar</del> <small>ICHPRC</small> Signature: _____ Date/Time: MAR 13 2018 0956	Received By: <u>Miko Esperza</u> <small>ICHPRC</small> Signature: _____ Date/Time: MAR 13 2018 0958	Matrix * S = Soil      DS = Drum Solids SE = Sediment      DL = Drum Liquid SO = Solid      T = Tissue SL = Sludge      WI = Wipe W = Water      L = Liquid O = Oil      V = Vegetation A = Air      X = Other
Relinquished By: <u>Miko Esperza</u> <small>ICHPRC</small> Signature: _____ Date/Time: MAR 13 2018 1400	Received By: <u>FEDEX</u> Signature: _____ Date/Time: _____	
Relinquished By: <u>Fed Ex</u> Signature: _____ Date/Time: _____	Received By: <u>Chakeris Tarplin</u> <small>GEL Laboratories</small> Signature: _____ Date/Time: 3/14/18 0900	
Relinquished By: _____ Signature: _____ Date/Time: _____	Received By: _____ Signature: _____ Date/Time: _____	

<b>FINAL SAMPLE DISPOSITION</b>	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:
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<b>CH2M Hill Plateau Remediation Company</b>	<i>LBS-81</i>	<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b> <span style="font-size: 1.2em; color: blue;">445810</span>	C.O.C.# <b>W18-003-189</b> Page 1 of 1
<b>Collector:</b> Kathy Turner /CHPRC	<b>Contact/Requester:</b> Karen Waters-Husted	<b>Telephone No.:</b> 509-376-4650	
<b>SAF No.:</b> W18-003	<b>Sampling Origin:</b> Hanford Site	<b>Purchase Order/Charge Code:</b> 300071	
<b>Project Title:</b> RCRA, MARCH 2018	<b>Logbook No.:</b> HNF-N-506 - <i>77-72</i>	<b>Ice Chest No.:</b> <i>3/13/18</i> <i>GWS-681</i>	
<b>Shipped To (Lab):</b> TestAmerica Incorporated, Rich	<b>Method of Shipment:</b> GOVERNMENT VEHICLE	<b>Bill of Lading/Air Bill No.:</b> <i>3/13/18</i> <i>78002100502</i>	
<b>Protocol:</b> RCRA	<b>Priority:</b> 30 Days	<b>Offsite Property No.:</b> <i>3/13/18</i> <i>9151</i>	

<b>POSSIBLE SAMPLE HAZARDS/REMARK</b> ** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1	<b>SPECIAL INSTRUCTIONS</b> N/A
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Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3HJD5	N		MAR 12 2018	1343	1x125-mL P	300.0_ANIONS_IC: COMMON	48 Hours	Cool <=6C

Relinquished By: <i>Kathy Turner</i> Print First and Last Name: <i>Kathy Turner</i> Signature: <i>[Signature]</i> Date/Time: <i>MAR 12 2018 1430</i>	Received By: <b>SSU-1</b> Print First and Last Name: _____ Signature: _____ Date/Time: <i>MAR 12 2018 1430</i>	Matrix * S = Soil      DS = Drum Solids SE = Sediment      DL = Drum Liquid SO = Solid      T = Tissue SL = Sludge      WI = Wipe W = Water      L = Liquid O = Oil      V = Vegetation A = Air      X = Other
Relinquished By: <b>SSU-1</b> Print First and Last Name: _____ Signature: _____ Date/Time: <i>MAR 13 2018 0645</i>	Received By: <i>Troy Bacon</i> Print First and Last Name: <i>Troy L. Bacon</i> Signature: <i>[Signature]</i> Date/Time: <i>MAR 13 2018 0645</i>	
Relinquished By: <i>Troy Bacon</i> Print First and Last Name: <i>Troy L. Bacon</i> Signature: <i>[Signature]</i> Date/Time: <i>MAR 13 2018 1400</i>	Received By: <b>FEDEX</b> Print First and Last Name: _____ Signature: _____ Date/Time: _____	
Relinquished By: <b>Fed Ex</b> Print First and Last Name: _____ Signature: _____ Date/Time: _____	Received By: <i>Chakeris Tarplin</i> Print First and Last Name: <i>Chakeris Tarplin</i> Signature: <i>[Signature]</i> Date/Time: <i>3/14/18 0900</i>	

<b>FINAL SAMPLE DISPOSITION</b>	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:
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<b>Collector:</b> Kathy Turner /CHPRC	<b>Contact/Requester:</b> Karen Waters-Husted	<b>Telephone No.:</b> 509-376-4650
<b>SAF No.:</b> W18-003	<b>Sampling Origin:</b> Hanford Site	<b>Purchase Order/Charge Code:</b> 300071
<b>Project Title:</b> RCRA, MARCH 2018	<b>Logbook No.:</b> HNF-N-506-97-72	<b>Ice Chest No.:</b> GWS-681
<b>Shipped To (Lab):</b> GEL Laboratories, LLC	<b>Method of Shipment:</b> Commercial Carrier	<b>Bill of Lading/Air Bill No.:</b> 780021005522
<b>Protocol:</b> RCRA	<b>Priority:</b> 30 Days	<b>Offsite Property No.:</b> 9151

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

**SPECIAL INSTRUCTIONS**  
 N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3HK03	N		MAR 12 2018	1236	1x500-mL G/P	6010_METALS_ICP: COMMON; 6020_METALS_ICPMS: Uranium (1)	6 Months	HNO3 to pH <2

Relinquished By: Kathy Turner /CHPRC <i>Kathy Turner</i> Print First and Last Name      Signature	MAR 12 2018 1430 Date/Time	Received By: <del>Kathy Turner</del> SSU-1 Print First and Last Name      Signature	MAR 12 2018 1430 Date/Time	Matrix * S = Soil      DS = Drum Solids SE = Sediment      DL = Drum Liquid SO = Solid      T = Tissue SL = Sludge      WI = Wipe W = Water      L = Liquid O = Oil      V = Vegetation A = Air      X = Other	
Relinquished By: Troy Bacon /CHPRC <i>Troy L. Bacon</i> Print First and Last Name      Signature	MAR 13 2018 0645 Date/Time	Received By: Troy Bacon /CHPRC <i>Troy L. Bacon</i> Print First and Last Name      Signature	MAR 13 2018 0645 Date/Time		
Relinquished By: Troy Bacon /CHPRC <i>Troy L. Bacon</i> Print First and Last Name      Signature	MAR 13 2018 1400 Date/Time	Received By: FEDEX Print First and Last Name      Signature	Date/Time		
Relinquished By: Fed Ex Print First and Last Name      Signature	Date/Time	Received By: Chakeris Tarplin /GEL Laboratories <i>Chakeris Tarplin</i> Print First and Last Name      Signature	3/14/18 0900 Date/Time		
<b>FINAL SAMPLE DISPOSITION</b>		Disposal Method (e.g., Return to customer, per lab procedure, used in process):		Disposed By:	Date/Time:

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CH2M Hill Plateau  
Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#  
W18-003-116

445810

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<b>Collector:</b> Kathy Turner ICHPRC	<b>Contact/Requester:</b> Karen Waters-Husted	<b>Telephone No.:</b> 509-376-4650
<b>SAF No.:</b> W18-003	<b>Sampling Origin:</b> Hanford Site	<b>Purchase Order/Charge Code:</b> 300071
<b>Project Title:</b> RCRA, MARCH 2018	<b>Logbook No.:</b> HNF-N-506 - 97-72	<b>Ice Chest No.:</b> GWS-681
<b>Shipped To (Lab):</b> GEL Laboratories, LLC	<b>Method of Shipment:</b> Commercial Carrier	<b>Bill of Lading/Air Bill No.:</b> 780021005522
<b>Protocol:</b> RCRA	<b>Priority:</b> 30 Days	<b>Offsite Property No.:</b> 9151

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

**SPECIAL INSTRUCTIONS**  
 N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3HKC3	N	W	MAR 12 2018	1343	1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2 / Cool <=6C
B3HKC3	N	W			1x250-mL aG	9060_TOX: COMMON	28 Days	HCl or H2SO4 to pH <2 / Cool <=6C
B3HJD4	N	W			1x250-mL G/P	2320_ALKALINITY: COMMON	14 Days	Cool <=6C
B3HJD4	N	W			1x500-mL G/P	6010_METALS_ICP: COMMON; 6020_METALS_ICPMS: Uranium (1)	6 Months	HNO3 to pH <2
B3HJD4	N	W			4x1-L aG	8270_PHENOLIC_GC: COMMON	7/40 Days	Cool <=6C
B3HJD4	N	W			1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2 / Cool <=6C
B3HJD4	N	W			1x250-mL aG	9060_TOX: COMMON	28 Days	HCl or H2SO4 to pH <2 / Cool <=6C
B3HKC4	N	W			1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2 / Cool <=6C

Relinquished By: Kathy Turner ICHPRC Signature: <i>Kathy Turner</i> Date/Time: MAR 12 2018 1430	Received By: SSU-1 Signature: _____ Date/Time: MAR 12 2018 1430	<b>Matrix *</b> S = Soil      DS = Drum Solids SE = Sediment      DL = Drum Liquid SO = Solid      T = Tissue SL = Sludge      WI = Wipe W = Water      L = Liquid O = Oil      V = Vegetation A = Air      X = Other
Relinquished By: SSU-1 Signature: _____ Date/Time: MAR 13 2018 0645	Received By: Troy Bacon CHPRC Signature: <i>Troy L. Bacon</i> Date/Time: MAR 13 2018 0645	
Relinquished By: Troy Bacon CHPRC Signature: <i>Troy L. Bacon</i> Date/Time: MAR 13 2018 1400	Received By: FEDEX Signature: _____ Date/Time: _____	
Relinquished By: Fed Ex Signature: _____ Date/Time: _____	Received By: Chakeris Tarplin GEL Laboratories Signature: <i>Chakeris Tarplin</i> Date/Time: 3/14/18 09100	

<b>FINAL SAMPLE DISPOSITION</b>	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:
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CH2MHill Plateau  
Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#  
W18-003-116

445810

<b>Collector:</b> <sup>Kenny Turner</sup> ICHPRC	<b>Contact/Requester:</b> Karen Waters-Husted	<b>Telephone No.:</b> 509-376-4650
<b>SAF No.:</b> W18-003	<b>Sampling Origin:</b> Hanford Site	<b>Purchase Order/Charge Code:</b> 300071
<b>Project Title:</b> RCRA, MARCH 2018	<b>Logbook No.:</b> HNF-N-506-97-72	<b>Ice Chest No.:</b> GWS-681
<b>Shipped To (Lab):</b> GEL Laboratories, LLC	<b>Method of Shipment:</b> Commercial Carrier	<b>Bill of Lading/Air Bill No.:</b> 780021005522
<b>Protocol:</b> RCRA	<b>Priority:</b> 30 Days	<b>Offsite Property No.:</b> 9151

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

**SPECIAL INSTRUCTIONS**  
 N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3HKC4	N	W	MAR 12 2018	1343	1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2 / Cool <=6C
B3HKC2	N	W	↓	↓	1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2 / Cool <=6C
B3HKC2	N	W	↓	↓	1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2 / Cool <=6C

4/9/2018

Relinquished By: <sup>Kenny Turner</sup> ICHPRC Print First and Last Name: <i>Kenny Turner</i> Signature: <i>[Signature]</i> Date/Time: MAR 12 2018 1430	Received By: <b>SSU-1</b> Print First and Last Name: <i>[Signature]</i> Signature: <i>[Signature]</i> Date/Time: MAR 12 2018 1430	Matrix * S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By: <b>SSU-1</b> Print First and Last Name: <i>[Signature]</i> Signature: <i>[Signature]</i> Date/Time: MAR 13 2018 0645	Received By: Troy Bacon CHPRC Print First and Last Name: <i>Troy L Bacon</i> Signature: <i>[Signature]</i> Date/Time: MAR 13 2018 0645	
Relinquished By: Troy Bacon CHPRC Print First and Last Name: <i>Troy L Bacon</i> Signature: <i>[Signature]</i> Date/Time: MAR 13 2018 1400	Received By: <b>FEDEX</b> Print First and Last Name: <i>[Signature]</i> Signature: <i>[Signature]</i> Date/Time: <i>[Signature]</i>	
Relinquished By: <b>Fed Ex</b> Print First and Last Name: <i>[Signature]</i> Signature: <i>[Signature]</i> Date/Time: <i>[Signature]</i>	Received By: Chakeris Tarplin GEL Laboratories Print First and Last Name: <i>[Signature]</i> Signature: <i>[Signature]</i> Date/Time: 3/14/18 0900	

<b>FINAL SAMPLE DISPOSITION</b>	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:
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REV.0

**SAMPLE RECEIPT & REVIEW FORM**

#5

Client: CPRC SDG/AR/COC/Work Order: 445810

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?  Yes  No Hazard Class Shipped: \_\_\_\_\_ UN#: \_\_\_\_\_

COC/Samples marked or classified as radioactive?  Yes  No 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?  Yes  No 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"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
3 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>			Preservation Method: <u>Wet Ice</u> Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius <span style="float: right;">TEMP: <u>1c</u></span>
4 Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>			Temperature Device Serial #: <u>IR4-17</u> Secondary Temperature Device Serial # (if Applicable): _____
5 Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>			Sample ID's and Containers Affected: If Preservation added, Lot#: _____
7 Do any samples require Volatile Analysis?			<input checked="" type="checkbox"/>	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?	<input checked="" type="checkbox"/>			ID's and tests affected: _____
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected: _____
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected: _____
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected: _____
12 Are sample containers identifiable as GEL provided?			<input checked="" type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials asg Date 3/15/18 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 analyte was detected in the associated method blank $\geq$ 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 $\geq$ 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 09 April 2018**

<b>State</b>	<b>Certification</b>
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

# **Semi-Volatile Analysis**

# Case Narrative

**GC/MS Semivolatile  
Technical Case Narrative  
CH2MHill Plateau Remediation Company (CPRC)  
SDG #: GEL445810  
Work Order #: 445810**

**Product:** Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

**Analytical Method:** SW846 3510C/8270D

**Analytical Procedure:** GL-OA-E-009 REV# 40

**Analytical Batch:** 1747223

**Preparation Method:** SW846 3510C

**Preparation Procedure:** GL-OA-E-013 REV# 32

**Preparation Batch:** 1747222

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>
445810006	B3HJD4
1203989724	Method Blank (MB)
1203989725	Laboratory Control Sample (LCS)
1203989726	445807002(NonSDG) Matrix Spike (MS)
1203989727	445807002(NonSDG) Matrix Spike Duplicate (MSD)

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

**Data Summary:**

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

**Quality Control (QC) Information**

**Laboratory Control Sample (LCS) Recovery**

The LCS and/or LCSD (See Below) spike recoveries were not within the acceptance limits. The client established the limits of 70%-130%. Failures are expected. The data were reported per client request.

Sample	Analyte	Value
1203989725 (LCS)	2, 4-Dimethylphenol	64* (70%-130%)
	4-Nitrophenol	46* (70%-130%)
	Phenol	62* (70%-130%)

**MS/MSD Relative Percent Difference (RPD) Statement**

The relative percent difference (RPD) between the MS and MSD (See Below) did not meet acceptance limits. As the individual MS and MSD recoveries were within the acceptance limits, the failures had no adverse impact on the reported sample data.

Sample	Analyte	Value
--------	---------	-------

1203989726MS and 1203989727MSD (Non SDG 445807002)	2, 4-Dinitrophenol	RPD 38* (0%-20%)
	2-Methyl-4, 6-dinitrophenol	RPD 21* (0%-20%)
	4-Nitrophenol	RPD 34* (0%-20%)

**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: GEL445810 GEL Work Order: 445810

**The Qualifiers in this report are defined as follows:**

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

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

DL Indicates that sample is diluted.

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

RE Indicates that sample is re-extracted.

**Review/Validation**

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

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

Signature: 

Name: **Barbara Bailey**

Date: **09 APR 2018**

Title: **Data Validator**

# Sample Data Summary

Semi-Volatile  
Certificate of Analysis  
Sample Summary

Page 1 of 1

<b>SDG Number:</b> GEL445810	<b>Date Collected:</b> 03/12/2018 13:43	<b>Matrix:</b> WATER
<b>Lab Sample ID:</b> 445810006	<b>Date Received:</b> 03/14/2018 09:00	
<b>Client ID:</b> B3HJD4	<b>Client:</b> CPRC001	<b>Project:</b> CPRC0W18003
<b>Batch ID:</b> 1747223	<b>Method:</b> SW846 3510C/8270D	<b>SOP Ref:</b> GL-OA-E-009
<b>Run Date:</b> 03/15/2018 22:17	<b>Inst:</b> MSD2.I	<b>Dilution:</b> 1
<b>Prep Date:</b> 03/15/2018 07:57	<b>Analyst:</b> AGS1	<b>Inj. Vol:</b> 1 uL
<b>Data File:</b> s031518.B\s2c1513.D	<b>Aliquot:</b> 1060 mL	<b>Final Volume:</b> 1 mL
	<b>Column:</b> DB-5ms	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
58-90-2	2,3,4,6-Tetrachlorophenol	U	2.83	ug/L	2.83	9.43
95-95-4	2,4,5-Trichlorophenol	U	2.83	ug/L	2.83	9.43
88-06-2	2,4,6-Trichlorophenol	U	2.83	ug/L	2.83	9.43
120-83-2	2,4-Dichlorophenol	U	2.83	ug/L	2.83	9.43
105-67-9	2,4-Dimethylphenol	U	2.83	ug/L	2.83	9.43
51-28-5	2,4-Dinitrophenol	U	4.72	ug/L	4.72	18.9
87-65-0	2,6-Dichlorophenol	U	2.83	ug/L	2.83	9.43
95-57-8	2-Chlorophenol	U	2.83	ug/L	2.83	9.43
534-52-1	2-Methyl-4,6-dinitrophenol	U	2.83	ug/L	2.83	9.43
88-75-5	2-Nitrophenol	U	2.83	ug/L	2.83	9.43
59-50-7	4-Chloro-3-methylphenol	U	2.83	ug/L	2.83	9.43
100-02-7	4-Nitrophenol	U	2.83	ug/L	2.83	9.43
88-85-7	Dinoseb	U	2.83	ug/L	2.83	9.43
87-86-5	Pentachlorophenol	U	2.83	ug/L	2.83	9.43
108-95-2	Phenol	U	2.83	ug/L	2.83	9.43
65794-96-9	m,p-Cresols	U	3.49	ug/L	3.49	9.43
95-48-7	o-Cresol	U	2.83	ug/L	2.83	9.43

# Quality Control Summary

**GEL LABORATORIES LLC**

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**QC Summary**

Report Date: March 16, 2018

Page 1 of 7

CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 445810

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Semi-Volatile-GC/MS</b>											
Batch	1747223										
QC1203989725	LCS										
2,3,4,6-Tetrachlorophenol	50.0			41.9	ug/L		84	(70%-130%)	AGS1	03/15/18	22:45
2,4,5-Trichlorophenol	50.0			41.8	ug/L		84	(70%-130%)			
2,4,6-Trichlorophenol	50.0			38.2	ug/L		76	(70%-130%)			
2,4-Dichlorophenol	50.0			38.0	ug/L		76	(70%-130%)			
2,4-Dimethylphenol	50.0			32.2	ug/L		64 *	(70%-130%)			
2,4-Dinitrophenol	50.0			48.4	ug/L		97	(70%-130%)			
2,6-Dichlorophenol	50.0			53.9	ug/L		108	(70%-130%)			
2-Chlorophenol	50.0			39.9	ug/L		80	(70%-130%)			
2-Methyl-4,6-dinitrophenol	50.0			45.6	ug/L		91	(70%-130%)			
2-Nitrophenol	50.0			38.9	ug/L		78	(70%-130%)			
4-Chloro-3-methylphenol	50.0			37.0	ug/L		74	(70%-130%)			
4-Nitrophenol	50.0			23.1	ug/L		46 *	(70%-130%)			
Pentachlorophenol	50.0			39.6	ug/L		79	(70%-130%)			

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**QC Summary**

Workorder: 445810

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Semi-Volatile-GC/MS</b>											
Batch	1747223										
Phenol	50.0			31.1	ug/L		62*	(70%-130%)	AGS1	03/15/18	22:45
m,p-Cresols	50.0			41.9	ug/L		84	(70%-130%)			
o-Cresol	50.0			35.7	ug/L		71	(70%-130%)			
**2,4,6-Tribromophenol	100			99.6	ug/L		100	(32%-124%)			
**2-Fluorobiphenyl	50.0			42.3	ug/L		85	(32%-112%)			
**2-Fluorophenol	100			69.3	ug/L		69	(15%-88%)			
**Nitrobenzene-d5	50.0			37.0	ug/L		74	(36%-115%)			
**Phenol-d5	100			68.4	ug/L		68	(15%-91%)			
**p-Terphenyl-d14	50.0			34.6	ug/L		69	(36%-121%)			
QC1203989724 MB											
2,3,4,6-Tetrachlorophenol			U	3.00	ug/L					03/15/18	19:54
2,4,5-Trichlorophenol			U	3.00	ug/L						
2,4,6-Trichlorophenol			U	3.00	ug/L						
2,4-Dichlorophenol			U	3.00	ug/L						
2,4-Dimethylphenol			U	3.00	ug/L						
2,4-Dinitrophenol			U	5.00	ug/L						

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**QC Summary**

Workorder: 445810

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Semi-Volatile-GC/MS</b>											
Batch	1747223										
2,6-Dichlorophenol			U	3.00	ug/L				AGS1	03/15/18	19:54
2-Chlorophenol			U	3.00	ug/L						
2-Methyl-4,6-dinitrophenol			U	3.00	ug/L						
2-Nitrophenol			U	3.00	ug/L						
4-Chloro-3-methylphenol			U	3.00	ug/L						
4-Nitrophenol			U	3.00	ug/L						
Dinoseb			U	3.00	ug/L						
Pentachlorophenol			U	3.00	ug/L						
Phenol			U	3.00	ug/L						
m,p-Cresols			U	3.70	ug/L						
o-Cresol			U	3.00	ug/L						
**2,4,6-Tribromophenol	100			74.3	ug/L		74	(32%-124%)			
**2-Fluorobiphenyl	50.0			30.6	ug/L		61	(32%-112%)			
**2-Fluorophenol	100			40.0	ug/L		40	(15%-88%)			
**Nitrobenzene-d5	50.0			29.6	ug/L		59	(36%-115%)			

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**QC Summary**

Workorder: 445810

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Semi-Volatile-GC/MS</b>											
Batch	1747223										
**Phenol-d5	100			25.6	ug/L		26	(15%-91%)	AGS1	03/15/18	19:54
**p-Terphenyl-d14	50.0			33.1	ug/L		66	(36%-121%)			
QC1203989726 445807002 MS											
2,3,4,6-Tetrachlorophenol	100	U	2.63	64.5	ug/L		65	(29%-127%)		03/15/18	21:19
2,4,5-Trichlorophenol	100	U	2.63	61.7	ug/L		62	(32%-124%)			
2,4,6-Trichlorophenol	100	U	2.63	59.5	ug/L		60	(33%-124%)			
2,4-Dichlorophenol	100	U	2.63	60.0	ug/L		60	(31%-121%)			
2,4-Dimethylphenol	100	U	2.63	52.9	ug/L		53	(28%-112%)			
2,4-Dinitrophenol	100	U	4.39	70.5	ug/L		71	(15%-140%)			
2,6-Dichlorophenol	100	U	2.63	81.4	ug/L		81	(32%-127%)			
2-Chlorophenol	100	U	2.63	63.9	ug/L		64	(27%-116%)			
2-Methyl-4,6-dinitrophenol	100	U	2.63	66.4	ug/L		66	(15%-142%)			
2-Nitrophenol	100	U	2.63	62.1	ug/L		62	(35%-121%)			
4-Chloro-3-methylphenol	100	U	2.63	59.6	ug/L		60	(28%-130%)			
4-Nitrophenol	100	U	2.63	24.1	ug/L		24	(15%-88%)			
Pentachlorophenol	100	U	2.63	55.6	ug/L		56	(15%-135%)			

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**QC Summary**

Workorder: 445810

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Semi-Volatile-GC/MS</b>											
Batch	1747223										
Phenol	100	U	2.63	37.9	ug/L		38	(15%-80%)	AGS1	03/15/18	21:19
m,p-Cresols	100	U	3.25	66.2	ug/L		66	(31%-118%)			
o-Cresol	100	U	2.63	58.7	ug/L		59	(32%-108%)			
**2,4,6-Tribromophenol	200		68.1	162	ug/L		81	(32%-124%)			
**2-Fluorobiphenyl	100		31.3	66.9	ug/L		67	(32%-112%)			
**2-Fluorophenol	200		29.9	100	ug/L		50	(15%-88%)			
**Nitrobenzene-d5	100		25.9	59.8	ug/L		60	(36%-115%)			
**Phenol-d5	200		18.2	79.7	ug/L		40	(15%-91%)			
**p-Terphenyl-d14	100		25.7	56.3	ug/L		56	(36%-121%)			
QC1203989727 445807002 MSD											
2,3,4,6-Tetrachlorophenol	100	U	2.63	59.5	ug/L	8	60	(0%-20%)		03/15/18	21:48
2,4,5-Trichlorophenol	100	U	2.63	59.9	ug/L	3	60	(0%-20%)			
2,4,6-Trichlorophenol	100	U	2.63	57.2	ug/L	4	57	(0%-20%)			
2,4-Dichlorophenol	100	U	2.63	56.4	ug/L	6	56	(0%-20%)			
2,4-Dimethylphenol	100	U	2.63	50.3	ug/L	5	50	(0%-20%)			
2,4-Dinitrophenol	100	U	4.39	48.1	ug/L	38*	48	(0%-20%)			

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**QC Summary**

Workorder: 445810

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Semi-Volatile-GC/MS</b>											
Batch	1747223										
2,6-Dichlorophenol	100	U	2.63		75.9	ug/L	7	76	(0%-20%)	AGS1	03/15/18 21:48
2-Chlorophenol	100	U	2.63		60.8	ug/L	5	61	(0%-20%)		
2-Methyl-4,6-dinitrophenol	100	U	2.63		53.8	ug/L	21*	54	(0%-20%)		
2-Nitrophenol	100	U	2.63		57.9	ug/L	7	58	(0%-20%)		
4-Chloro-3-methylphenol	100	U	2.63		54.3	ug/L	9	54	(0%-20%)		
4-Nitrophenol	100	U	2.63	J	17.1	ug/L	34*	17	(0%-20%)		
Pentachlorophenol	100	U	2.63		50.6	ug/L	9	51	(0%-20%)		
Phenol	100	U	2.63		35.5	ug/L	6	36	(0%-20%)		
m,p-Cresols	100	U	3.25		61.7	ug/L	7	62	(0%-20%)		
o-Cresol	100	U	2.63		54.5	ug/L	8	54	(0%-20%)		
**2,4,6-Tribromophenol	200		68.1		138	ug/L		69	(32%-124%)		
**2-Fluorobiphenyl	100		31.3		64.4	ug/L		64	(32%-112%)		
**2-Fluorophenol	200		29.9		96.2	ug/L		48	(15%-88%)		
**Nitrobenzene-d5	100		25.9		55.9	ug/L		56	(36%-115%)		
**Phenol-d5	200		18.2		75.3	ug/L		38	(15%-91%)		

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**QC Summary**

Workorder: 445810

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch		1747223									
**p-Terphenyl-d14	100	25.7		63.1	ug/L		63	(36%-121%)	AGS1	03/15/18	21:48

**Notes:**

The Qualifiers in this report are defined as follows:

- A The TIC is a suspected aldol-condensation product
- B The analyte was detected in both the associated QC blank and in the sample.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate). Value is estimated
- N Spike Sample recovery is outside control limits.
- P Aroclor target analyte with greater than 25% difference between column analyses.
- T Spike and/or spike duplicate sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- o Analyte failed to recover within LCS limits (Organics only)

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

\* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

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

## Surrogate Recovery Report

SDG Number: GEL445810

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1203989724	MB for batch 1747222	40	26	59	61	74	66
1203989726	B3HHF5MS	50	40	60	67	81	56
1203989727	B3HHF5MSD	48	38	56	64	69	63
445810006	B3HJD4	36	21	56	69	71	61
1203989725	LCS for batch 1747222	69	68	74	85	100	69

## Surrogate

## Acceptance Limits

2FP	= 2-Fluorophenol	(15%-88%)
PHL	= Phenol-d5	(15%-91%)
NBZ	= Nitrobenzene-d5	(36%-115%)
FBP	= 2-Fluorobiphenyl	(32%-112%)
TBP	= 2,4,6-Tribromophenol	(32%-124%)
TPH	= p-Terphenyl-d14	(36%-121%)

\* Recovery outside Acceptance Limits

# Column to be used to flag recovery values

D Sample Diluted

# Metals Analysis

# Case Narrative

**Metals**  
**Technical Case Narrative**  
**CH2MHill Plateau Remediation Company (CPRC)**  
**SDG #: GEL445810**  
**Work Order #: 445810**

**Product: Determination of Metals by ICP****Analytical Method:** SW846 3005A/6010D**Analytical Procedure:** GL-MA-E-013 REV# 30**Analytical Batch:** 1747135**Product: Determination of Metals by ICP-MS****Analytical Method:** SW846 3005A/6020B**Analytical Procedure:** GL-MA-E-014 REV# 32**Analytical Batch:** 1747140**Preparation Method:** SW846 3005A**Preparation Procedure:** GL-MA-E-006 REV# 14**Preparation Batches:** 1747132 and 1747136

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>
445810004	B3HK03
445810006	B3HJD4
1203989586	Method Blank (MB) <b>ICP</b>
1203989587	Laboratory Control Sample (LCS)
1203989590	445810004(B3HK03L) Serial Dilution (SD)
1203989588	445810004(B3HK03S) Matrix Spike (MS)
1203989589	445810004(B3HK03SD) Matrix Spike Duplicate (MSD)
1203989600	Method Blank (MB) <b>ICP-MS</b>
1203989601	Laboratory Control Sample (LCS)
1203989604	445810004(B3HK03L) Serial Dilution (SD)
1203989602	445810004(B3HK03S) Matrix Spike (MS)
1203989603	445810004(B3HK03SD) Matrix Spike Duplicate (MSD)

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

**Data Summary:**

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

**Calibration Information****CRDL/PQL Requirements**

The PQL standard recoveries for SW846 6010C or 6010D met the control limits with the exception of potassium. Client sample concentrations were less than the MDL or greater than two times the PQL; therefore the data were not adversely affected. 445810004 (B3HK03) and 445810006 (B3HJD4)-ICP.

**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.

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**Qualifier Definition Report  
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL445810 GEL Work Order: 445810

**The Qualifiers in this report are defined as follows:**

- \* Duplicate analysis not within control limits
- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- D Results are reported from a diluted aliquot of sample.
- N Spike Sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

**Review/Validation**

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

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

**Signature:****Name: Nik-Cole Elmore****Date: 09 APR 2018****Title: Data Validator**

# Sample Data Summary

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

**SDG No:** GEL445810

**CONTRACT:** CPRCOW18003

**METHOD TYPE:** SW846

**SAMPLE ID:**445810004

**BASIS:** As Received

**DATE COLLECTED** 12-MAR-18

**CLIENT ID:** B3HK03

**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
7440-36-0	Antimony	3.5	ug/L	U	3.5	10	10	1	P	HSC	03/23/18 17:20	032318-1	1747135
7440-38-2	Arsenic	5	ug/L	U	5	30	30	1	P	HSC	03/23/18 17:20	032318-1	1747135
7440-39-3	Barium	36.3	ug/L		1	5	5	1	P	HSC	03/23/18 17:20	032318-1	1747135
7440-43-9	Cadmium	1	ug/L	U	1	5	5	1	P	HSC	03/23/18 17:20	032318-1	1747135
7440-70-2	Calcium	44800	ug/L		50	200	200	1	P	HSC	03/23/18 17:20	032318-1	1747135
7440-47-3	Chromium	2.6	ug/L	B	1	5	5	1	P	HSC	03/23/18 17:20	032318-1	1747135
7440-48-4	Cobalt	1	ug/L	U	1	5	5	1	P	HSC	03/23/18 17:20	032318-1	1747135
7440-50-8	Copper	3	ug/L	U	3	10	10	1	P	HSC	03/23/18 17:20	032318-1	1747135
7439-89-6	Iron	30	ug/L	U	30	100	100	1	P	HSC	03/23/18 17:20	032318-1	1747135
7439-95-4	Magnesium	13700	ug/L		110	300	300	1	P	HSC	03/23/18 17:20	032318-1	1747135
7439-96-5	Manganese	2	ug/L	U	2	10	10	1	P	HSC	03/23/18 17:20	032318-1	1747135
7440-02-0	Nickel	1.5	ug/L	U	1.5	5	5	1	P	HSC	03/23/18 17:20	032318-1	1747135
7440-09-7	Potassium	4050	ug/L		50	150	150	1	P	HSC	03/23/18 17:20	032318-1	1747135
7440-22-4	Silver	1	ug/L	U	1	5	5	1	P	HSC	03/23/18 17:20	032318-1	1747135
7440-23-5	Sodium	10100	ug/L		100	300	300	1	P	HSC	03/23/18 17:20	032318-1	1747135
7440-61-1	Uranium	0.822	ug/L		0.067	0.2	15	1	MS	SKJ	03/20/18 10:34	180320-2	1747140
7440-62-2	Vanadium	28.1	ug/L		1	5	5	1	P	HSC	03/23/18 17:20	032318-1	1747135
7440-66-6	Zinc	4.57	ug/L	B	3.3	10	10	1	P	HSC	03/23/18 17:20	032318-1	1747135

**Prep Information:**

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1747135	1747132	SW846 3005A	50	mL	50	mL	03/14/18	JXM8
1747140	1747136	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: GEL445810

CONTRACT: CPRCOW18003

METHOD TYPE: SW846

SAMPLE ID: 445810006

BASIS: As Received

DATE COLLECTED 12-MAR-18

CLIENT ID: B3HJD4

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
7440-36-0	Antimony	3.5	ug/L	U	3.5	10	10	1	P	HSC	03/23/18 17:30	032318-1	1747135
7440-38-2	Arsenic	5	ug/L	U	5	30	30	1	P	HSC	03/23/18 17:30	032318-1	1747135
7440-39-3	Barium	38	ug/L		1	5	5	1	P	HSC	03/23/18 17:30	032318-1	1747135
7440-43-9	Cadmium	1	ug/L	U	1	5	5	1	P	HSC	03/23/18 17:30	032318-1	1747135
7440-70-2	Calcium	42400	ug/L		50	200	200	1	P	HSC	03/23/18 17:30	032318-1	1747135
7440-47-3	Chromium	3.45	ug/L	B	1	5	5	1	P	HSC	03/23/18 17:30	032318-1	1747135
7440-48-4	Cobalt	1	ug/L	U	1	5	5	1	P	HSC	03/23/18 17:30	032318-1	1747135
7440-50-8	Copper	3	ug/L	U	3	10	10	1	P	HSC	03/23/18 17:30	032318-1	1747135
7439-89-6	Iron	94.3	ug/L	B	30	100	100	1	P	HSC	03/23/18 17:30	032318-1	1747135
7439-95-4	Magnesium	13100	ug/L		110	300	300	1	P	HSC	03/23/18 17:30	032318-1	1747135
7439-96-5	Manganese	2.16	ug/L	B	2	10	10	1	P	HSC	03/23/18 17:30	032318-1	1747135
7440-02-0	Nickel	7.99	ug/L		1.5	5	5	1	P	HSC	03/23/18 17:30	032318-1	1747135
7440-09-7	Potassium	4160	ug/L		50	150	150	1	P	HSC	03/23/18 17:30	032318-1	1747135
7440-22-4	Silver	1	ug/L	U	1	5	5	1	P	HSC	03/23/18 17:30	032318-1	1747135
7440-23-5	Sodium	9980	ug/L		100	300	300	1	P	HSC	03/23/18 17:30	032318-1	1747135
7440-61-1	Uranium	0.917	ug/L		0.067	0.2	15	1	MS	SKJ	03/20/18 10:41	180320-2	1747140
7440-62-2	Vanadium	17.9	ug/L		1	5	5	1	P	HSC	03/23/18 17:30	032318-1	1747135
7440-66-6	Zinc	3.3	ug/L	U	3.3	10	10	1	P	HSC	03/23/18 17:30	032318-1	1747135

**Prep Information:**

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1747135	1747132	SW846 3005A	50	mL	50	mL	03/14/18	JXM8
1747140	1747136	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**

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**QC Summary**

Report Date: April 9, 2018

CH2MHill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 445810

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
<b>Metals Analysis - ICPMS</b>											
Batch	1747140										
QC1203989601		LCS									
Uranium	50.0			50.5	ug/L		101	(80%-120%)	SKJ	03/20/18	10:30
QC1203989600		MB									
Uranium			U	0.067	ug/L					03/20/18	10:28
QC1203989602		445810004	MS								
Uranium	50.0		0.822	50.2	ug/L		98.7	(75%-125%)		03/20/18	10:35
QC1203989603		445810004	MSD								
Uranium	50.0		0.822	50.0	ug/L	0.305	98.4	(0%-20%)		03/20/18	10:37
QC1203989604		445810004	SDILT								
Uranium			0.822	BD	0.175	ug/L	6.45	(0%-20%)		03/20/18	10:40
<b>Metals Analysis-ICP</b>											
Batch	1747135										
QC1203989587		LCS									
Antimony	500			481	ug/L		96.1	(80%-120%)	HSC	03/23/18	17:18
Arsenic	500			480	ug/L		96.1	(80%-120%)			
Barium	500			480	ug/L		96	(80%-120%)			
Cadmium	500			473	ug/L		94.6	(80%-120%)			
Calcium	5000			4930	ug/L		98.6	(80%-120%)			
Chromium	500			481	ug/L		96.1	(80%-120%)			

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**QC Summary**

Workorder: 445810

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
<b>Metals Analysis-ICP</b>											
Batch	1747135										
Cobalt	500			482	ug/L		96.4	(80%-120%)	HSC	03/23/18	17:18
Copper	500			487	ug/L		97.4	(80%-120%)			
Iron	5000			4860	ug/L		97.1	(80%-120%)			
Magnesium	5000			4880	ug/L		97.6	(80%-120%)			
Manganese	500			490	ug/L		98	(80%-120%)			
Nickel	500			475	ug/L		94.9	(80%-120%)			
Potassium	5000			4650	ug/L		93	(80%-120%)			
Silver	500			481	ug/L		96.1	(80%-120%)			
Sodium	5000			4680	ug/L		93.6	(80%-120%)			
Vanadium	500			485	ug/L		97.1	(80%-120%)			
Zinc	500			475	ug/L		95	(80%-120%)			
QC1203989586	MB										
Antimony			U	3.50	ug/L					03/23/18	17:15
Arsenic			U	5.00	ug/L						
Barium			U	1.00	ug/L						
Cadmium			U	1.00	ug/L						

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**QC Summary**

Workorder: 445810

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
<b>Metals Analysis-ICP</b>											
Batch	1747135										
Calcium			U	50.0	ug/L				HSC	03/23/18	17:15
Chromium			U	1.00	ug/L						
Cobalt			U	1.00	ug/L						
Copper			U	3.00	ug/L						
Iron			U	30.0	ug/L						
Magnesium			U	110	ug/L						
Manganese			U	2.00	ug/L						
Nickel			U	1.50	ug/L						
Potassium			U	50.0	ug/L						
Silver			U	1.00	ug/L						
Sodium			U	100	ug/L						
Vanadium			U	1.00	ug/L						
Zinc			U	3.30	ug/L						
QC1203989588 445810004 MS											
Antimony	500	U	3.50	486	ug/L		96.9	(75%-125%)		03/23/18	17:23
Arsenic	500	U	5.00	483	ug/L		96.6	(75%-125%)			

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**QC Summary**

Workorder: 445810

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
<b>Metals Analysis-ICP</b>											
Batch	1747135										
Barium	500		36.3	508	ug/L		94.3	(75%-125%)	HSC	03/23/18	17:23
Cadmium	500	U	1.00	469	ug/L		93.8	(75%-125%)			
Calcium	5000		44800	48400	ug/L		N/A	(75%-125%)			
Chromium	500	B	2.60	487	ug/L		96.9	(75%-125%)			
Cobalt	500	U	1.00	466	ug/L		93.2	(75%-125%)			
Copper	500	U	3.00	495	ug/L		99	(75%-125%)			
Iron	5000	U	30.0	4780	ug/L		95	(75%-125%)			
Magnesium	5000		13700	18300	ug/L		90.6	(75%-125%)			
Manganese	500	U	2.00	489	ug/L		97.7	(75%-125%)			
Nickel	500	U	1.50	471	ug/L		94	(75%-125%)			
Potassium	5000		4050	8460	ug/L		88.1	(75%-125%)			
Silver	500	U	1.00	479	ug/L		95.7	(75%-125%)			
Sodium	5000		10100	14300	ug/L		84.7	(75%-125%)			
Vanadium	500		28.1	522	ug/L		98.7	(75%-125%)			
Zinc	500	B	4.57	481	ug/L		95.3	(75%-125%)			

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**QC Summary**

Workorder: 445810

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
<b>Metals Analysis-ICP</b>											
Batch	1747135										
	QC1203989589 445810004 MSD										
Antimony	500	U	3.50	464	ug/L	4.56	92.6	(0%-20%)	HSC	03/23/18	17:25
Arsenic	500	U	5.00	543	ug/L	11.7	109	(0%-20%)			
Barium	500		36.3	557	ug/L	9.32	104	(0%-20%)			
Cadmium	500	U	1.00	518	ug/L	9.83	104	(0%-20%)			
Calcium	5000		44800	47600	ug/L	1.7	N/A	(0%-20%)			
Chromium	500	B	2.60	456	ug/L	6.58	90.7	(0%-20%)			
Cobalt	500	U	1.00	516	ug/L	10.1	103	(0%-20%)			
Copper	500	U	3.00	464	ug/L	6.35	92.9	(0%-20%)			
Iron	5000	U	30.0	5360	ug/L	11.4	107	(0%-20%)			
Magnesium	5000		13700	18400	ug/L	0.6	92.8	(0%-20%)			
Manganese	500	U	2.00	459	ug/L	6.3	91.7	(0%-20%)			
Nickel	500	U	1.50	441	ug/L	6.59	88	(0%-20%)			
Potassium	5000		4050	8860	ug/L	4.64	96.2	(0%-20%)			
Silver	500	U	1.00	530	ug/L	10.2	106	(0%-20%)			
Sodium	5000		10100	14600	ug/L	1.68	89.6	(0%-20%)			

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**QC Summary**

Workorder: 445810

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
<b>Metals Analysis-ICP</b>											
Batch	1747135										
Vanadium	500	28.1		490	ug/L	6.22	92.4	(0%-20%)	HSC	03/23/18	17:25
Zinc	500	B	4.57	451	ug/L	6.47	89.3	(0%-20%)			
QC1203989590 445810004 SDILT											
Antimony		U	1.50	DU	17.5	ug/L	N/A	(0%-20%)		03/23/18	17:27
Arsenic		U	-2.19	DU	25.0	ug/L	N/A	(0%-20%)			
Barium			36.3	D	7.24	ug/L	.188	(0%-20%)			
Cadmium		U	0.0541	DU	5.00	ug/L	N/A	(0%-20%)			
Calcium			44800	D	9070	ug/L	1.22	(0%-20%)			
Chromium		B	2.60	DU	5.00	ug/L	N/A	(0%-20%)			
Cobalt		U	0.0668	DU	5.00	ug/L	N/A	(0%-20%)			
Copper		U	-0.896	DU	15.0	ug/L	N/A	(0%-20%)			
Iron		U	28.7	DU	150	ug/L	N/A	(0%-20%)			
Magnesium			13700	D	2880	ug/L	4.77	(0%-20%)			
Manganese		U	0.110	DU	10.0	ug/L	N/A	(0%-20%)			
Nickel		U	0.748	DU	7.50	ug/L	N/A	(0%-20%)			
Potassium			4050	D	802	ug/L	1.02	(0%-20%)			

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**QC Summary**

Workorder: 445810

Page 7 of 7

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
<b>Metals Analysis-ICP</b>											
Batch	1747135										
Silver	U	0.352	DU	5.00	ug/L	N/A		(0%-20%)	HSC	03/23/18	17:27
Sodium		10100	D	2030	ug/L	.953		(0%-20%)			
Vanadium		28.1	D	5.17	ug/L	7.95		(0%-20%)			
Zinc	B	4.57	BD	7.48	ug/L	719		(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  $\geq$  EQL or is > 5% of the measured concentration and/or decision level for associated samples.
- D Results are reported from a diluted aliquot of sample.
- E Reported value is estimated due to interferences. See comment in narrative.
- M Duplicate precision not met.
- N Spike Sample recovery is outside control limits.
- S Reported value determined by the Method of Standard Additions (MSA)
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- W Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

\* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

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

# General Chem Analysis

# Case Narrative

**General Chemistry  
 Technical Case Narrative  
 CH2MHill Plateau Remediation Company (CPRC)  
 SDG #: GEL445810  
 Work Order #: 445810**

**Product:** Carbon, Total Organic

**Analytical Method:** SW846 9060A

**Analytical Procedure:** GL-GC-E-093 REV# 15

**Analytical Batch:** 1746313

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>
445810005	B3HKC3
445810006	B3HJD4
445810007	B3HKC4
445810008	B3HKC2
1203988642	Method Blank (MB)
1203988643	Laboratory Control Sample (LCS)
1203989617	445702014(B3HK07) Sample Duplicate (DUP)
1203989618	445702014(B3HK07) Post Spike (PS)

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:** Total Organic Halogens (TOX)

**Analytical Method:** 9020\_TOX

**Analytical Procedure:** GL-GC-E-007 REV# 14

**Analytical Batches:** 1750259 and 1752290

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>
445810005	B3HKC3
445810006	B3HJD4
445810007	B3HKC4
445810008	B3HKC2
1203996598	Method Blank (MB)
1203996599	Laboratory Control Sample (LCS)
1203996600	445702013(B3HKB7) Sample Duplicate (DUP)
1203996601	445702013(B3HKB7) Post Spike (PS)
1204001272	Method Blank (MB)
1204001273	Laboratory Control Sample (LCS)
1204001274	445810007(B3HKC4) Sample Duplicate (DUP)
1204001275	445810007(B3HKC4) Post Spike (PS)

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

#### **Data Summary:**

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

#### **Miscellaneous Information**

##### **Additional Comments**

A pair of nitrate wash blanks is analyzed at the start of the batch. Although they are designated as ICB, they are performed for calculating purposes only. The value of the nitrate wash blanks are averaged and subtracted from all samples. Neither of these values should exceed 0.6 ug Cl. The PQL limit typically applied to ICB results does not apply in this application, since the results are used only to determine background concentrations and are subtracted from all calculated results.

##### **Breakthrough effect**

Breakthrough effect: If the value for a sample is greater than the reporting limit (10 ug/L), the result for the second slug should not be greater than 25% of the combined value of the first and second slug. Results which do not meet these criteria are designated with a "Fail" comment in the Breakthrough effect column on the Logbook page; however, the "fail" designation is not applicable for samples with a result of less than 10 ug/L.

**Product: Ion Chromatography****Analytical Method:** 9056\_ANIONS\_IC**Analytical Procedure:** GL-GC-E-086 REV# 25**Analytical Batches:** 1747060 and 1747061

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

<b>GEL Sample ID#</b>	<b>Client Sample Identification</b>
445810001	B3HK05
445810002	B3HK48
445810003	B3HJD5
1203989439	Method Blank (MB)
1203989440	Laboratory Control Sample (LCS)
1203989441	445810001(B3HK05) Sample Duplicate (DUP)
1203989442	445810001(B3HK05) Post Spike (PS)
1203989450	Method Blank (MB)
1203989451	Laboratory Control Sample (LCS)
1203989452	445807001(NonSDG) Sample Duplicate (DUP)
1203989453	445807001(NonSDG) Post Spike (PS)

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

**Data Summary:**

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

**Technical Information****Sample Dilutions**

The following samples 1203989441 (B3HK05DUP), 1203989442 (B3HK05PS), 445810001 (B3HK05), 445810003 (B3HJD5), 1203989452 (Non SDG 445807001DUP) and 1203989453 (Non SDG 445807001PS) were diluted because target analyte concentrations exceeded the calibration range. 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.

Analyte	445810	
	001	003
Chloride	5X	5X
Nitrate	5X	5X
Sulfate	5X	5X

**Miscellaneous Information****Manual Integrations**

Samples 1203989440 (LCS), 1203989441 (B3HK05DUP), 1203989442 (B3HK05PS), 445810001 (B3HK05),

445810003 (B3HJD5), 1203989452 (Non SDG 445807001DUP), 1203989453 (Non SDG 445807001PS) and 445810002 (B3HK48) were manually integrated to correctly position the baseline as set in the calibration standards.

**Product: Alkalinity****Analytical Method:** 2320\_ALKALINITY**Analytical Procedure:** GL-GC-E-033 REV# 13**Analytical Batch:** 1748753

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>
445810006	B3HJD4
1203993185	Laboratory Control Sample (LCS)
1203993186	445810006(B3HJD4) Sample Duplicate (DUP)
1203993187	446025005(NonSDG) Sample Duplicate (DUP)

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.

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**Qualifier Definition Report  
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL445810 GEL Work Order: 445810

**The Qualifiers in this report are defined as follows:**

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

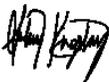
D Results are reported from a diluted aliquot of sample.

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

**Review/Validation**

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

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

**Signature:****Name: Aubrey Kingsbury****Date: 05 APR 2018****Title: Analyst I**

# Sample Data Summary

**GEL LABORATORIES LLC**

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**Certificate of Analysis**

Report Date: April 5, 2018

Company : CH2MHill Plateau Remediation Company  
 Address : MSIN R3-50 CHPRC  
 PO Box 1600  
 Richland, Washington 99352  
 Contact: Mr. Scot Fitzgerald  
 Project: CHPRC SAF W18-003

Client Sample ID: B3HK05 Project: CPRCOW18003  
 Sample ID: 445810001 Client ID: CPRC001  
 Matrix: WATER  
 Collect Date: 12-MAR-18 12:36  
 Receive Date: 14-MAR-18  
 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: COMMON "As Received"												
Fluoride	B	251	33.0	500	ug/L		1	JXH5	03/14/18	1106	1747060	1
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Chloride	D	13900	335	1000	ug/L		5	JXH5	03/14/18	1314	1747060	2
Nitrate-N	D	7080	165	500	ug/L		5					
Sulfate	D	35600	665	2000	ug/L		5					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	
2	9056_ANIONS_IC	

**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: April 5, 2018

Company : CH2MHill Plateau Remediation Company  
 Address : MSIN R3-50 CHPRC  
 PO Box 1600  
 Richland, Washington 99352  
 Contact: Mr. Scot Fitzgerald  
 Project: CHPRC SAF W18-003

Client Sample ID: B3HK48 Project: CPRCOW18003  
 Sample ID: 445810002 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
Ion Chromatography												
9056_ANIONS_IC: COMMON "As Received"												
Chloride		9590	67.0	200	ug/L		1	LXA2	03/14/18	1102	1747061	1
Fluoride	B	434	33.0	500	ug/L		1					
Nitrate-N		2920	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Sulfate		18300	133	500	ug/L		1					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	9056_ANIONS_IC	

**Notes:**

Column headers are defined as follows:

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







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**Certificate of Analysis**

Report Date: April 5, 2018

Company : CH2MHill Plateau Remediation Company  
 Address : MSIN R3-50 CHPRC  
 PO Box 1600  
 Richland, Washington 99352  
 Contact: Mr. Scot Fitzgerald  
 Project: CHPRC SAF W18-003

Client Sample ID: B3HKC4 Project: CPRCOW18003  
 Sample ID: 445810007 Client ID: CPRC001  
 Matrix: WATER  
 Collect Date: 12-MAR-18 13:43  
 Receive Date: 14-MAR-18  
 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Carbon Analysis</b>												
9060_TOX: COMMON "As Received"												
Total Organic Carbon #1	U	330	330	1000	ug/L		1	TSM	03/16/18	0540	1746313	1
Total Organic Carbon #2	U	330	330	1000	ug/L		1					
Total Organic Carbon #3	U	330	330	1000	ug/L		1					
Total Organic Carbon #4	U	330	330	1000	ug/L		1					
Total Organic Carbon Average	U	330	330	1000	ug/L		1					

<b>Halogen Analysis</b>												
9020_TOX: COMMON "As Received"												
Total Organic Halogens	U	3.33	3.33	10.0	ug/L		1	RMJ	04/02/18	1812	1752290	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060A	
2	9020_TOX	

**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: April 5, 2018

Company : CH2MHill Plateau Remediation Company  
 Address : MSIN R3-50 CHPRC  
 PO Box 1600  
 Richland, Washington 99352  
 Contact: Mr. Scot Fitzgerald  
 Project: CHPRC SAF W18-003

Client Sample ID: B3HKC2 Project: CPRCOW18003  
 Sample ID: 445810008 Client ID: CPRC001  
 Matrix: WATER  
 Collect Date: 12-MAR-18 13:43  
 Receive Date: 14-MAR-18  
 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis												
9060_TOX: COMMON "As Received"												
Total Organic Carbon #1	U	330	330	1000	ug/L		1	TSM	03/16/18	0620	1746313	1
Total Organic Carbon #2	U	330	330	1000	ug/L		1					
Total Organic Carbon #3	U	330	330	1000	ug/L		1					
Total Organic Carbon #4	U	330	330	1000	ug/L		1					
Total Organic Carbon Average	U	330	330	1000	ug/L		1					

Halogen Analysis												
9020_TOX: COMMON "As Received"												
Total Organic Halogens	B	3.68	3.33	10.0	ug/L		1	RMJ	04/02/18	2004	1752290	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060A	
2	9020_TOX	

**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: April 5, 2018

CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 445810

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Carbon Analysis</b>											
Batch	1746313										
QC1203989617	445702014	DUP									
Total Organic Carbon Average		U	330	U	330	ug/L	N/A		TSM	03/15/18	22:47
QC1203988643	LCS										
Total Organic Carbon Average	10000				9670	ug/L	96.7	(80%-120%)		03/15/18	13:48
QC1203988642	MB										
Total Organic Carbon Average			U		330	ug/L				03/15/18	13:38
QC1203989618	445702014	PS									
Total Organic Carbon Average	10.0	U	0.215		10.2	mg/L	99.9	(75%-125%)		03/15/18	23:26
<b>Halogen Analysis</b>											
Batch	1750259										
QC1203996600	445702013	DUP									
Total Organic Halogens			14.7		15.5	ug/L	5.16 ^	(+/-10.0)	RMJ	03/30/18	22:36
QC1203996599	LCS										
Total Organic Halogens	100				91.4	ug/L	91.4	(80%-120%)		03/30/18	21:53
QC1203996598	MB										
Total Organic Halogens			U		3.33	ug/L				03/30/18	21:29
QC1203996601	445702013	PS									
Total Organic Halogens	100		14.7		119	ug/L	105	(75%-125%)		03/30/18	23:23
Batch	1752290										
QC1204001274	445810007	DUP									
Total Organic Halogens		U	3.33	U	3.33	ug/L	N/A		RMJ	04/02/18	18:32

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**QC Summary**

Workorder: 445810

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Halogen Analysis</b>											
Batch	1752290										
QC1204001273	LCS										
Total Organic Halogens	100			87.0	ug/L		87	(80%-120%)	RMJ	04/02/18	17:51
QC1204001272	MB										
Total Organic Halogens			U	3.33	ug/L					04/02/18	17:26
QC1204001275	445810007	PS									
Total Organic Halogens	100	U	3.08	103	ug/L		100	(75%-125%)		04/02/18	19:24
<b>Ion Chromatography</b>											
Batch	1747060										
QC1203989441	445810001	DUP									
Chloride		D	13900	D	13900	ug/L	0	(0%-20%)	JXH5	03/14/18	13:45
Fluoride		B	251	B	284	ug/L	12.6 ^	(+/-500)		03/14/18	12:12
Nitrate-N		D	7080	D	7070	ug/L	0.127	(0%-20%)		03/14/18	13:45
Nitrite-N		U	33.0	U	33.0	ug/L	N/A			03/14/18	12:12
Sulfate		D	35600	D	35600	ug/L	0.242	(0%-20%)		03/14/18	13:45
QC1203989440	LCS										
Chloride	5000			4780	ug/L		95.6	(80%-120%)		03/14/18	15:48
Fluoride	2500			2560	ug/L		102	(80%-120%)			
Nitrate-N	2500			2460	ug/L		98.5	(80%-120%)			
Nitrite-N	2500			2510	ug/L		100	(80%-120%)			
Sulfate	10000			9950	ug/L		99.5	(80%-120%)			

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**QC Summary**

Workorder: 445810

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Ion Chromatography</b>											
Batch	1747060										
QC1203989439	MB										
Chloride			U	67.0	ug/L				JXH5	03/14/18	15:17
Fluoride			U	33.0	ug/L						
Nitrate-N			U	33.0	ug/L						
Nitrite-N			U	33.0	ug/L						
Sulfate			U	133	ug/L						
QC1203989442	445810001	PS									
Chloride	5.00	D	2.77	D	7.82	mg/L	101	(75%-125%)		03/14/18	14:16
Fluoride	3.75	B	0.251		3.98	mg/L	99.5	(75%-125%)		03/14/18	12:43
Nitrate-N	2.50	D	1.42	D	4.03	mg/L	104	(75%-125%)		03/14/18	14:16
Nitrite-N	3.75	U	0.00		3.45	mg/L	91.9	(75%-125%)		03/14/18	12:43
Sulfate	10.0	D	7.11	D	17.5	mg/L	104	(75%-125%)		03/14/18	14:16
Batch	1747061										
QC1203989452	445807001	DUP									
Chloride		D	19600	D	19600	ug/L	0.107	(0%-20%)	LXA2	03/14/18	14:31
Fluoride			623		606	ug/L	2.73 ^	(+/-500)		03/14/18	12:01
Nitrate-N		D	18100	D	18100	ug/L	0.0138	(0%-20%)		03/14/18	14:31
Nitrite-N		U	33.0	U	33.0	ug/L	N/A			03/14/18	12:01

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**QC Summary**

Workorder: 445810

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Ion Chromatography</b>											
Batch	1747061										
Sulfate		D	48200	D	48100	ug/L	0.252	(0%-20%)	LXA2	03/14/18	14:31
QC1203989451	LCS										
Chloride	5000				4800	ug/L		96	(80%-120%)		03/14/18 13:31
Fluoride	2500				2570	ug/L		103	(80%-120%)		
Nitrate-N	2500				2460	ug/L		98.6	(80%-120%)		
Nitrite-N	2500				2490	ug/L		99.8	(80%-120%)		
Sulfate	10000				9940	ug/L		99.4	(80%-120%)		
QC1203989450	MB										
Chloride				U	67.0	ug/L					03/14/18 13:01
Fluoride				U	33.0	ug/L					
Nitrate-N				U	33.0	ug/L					
Nitrite-N				U	33.0	ug/L					
Sulfate				U	133	ug/L					
QC1203989453	445807001 PS										
Chloride	5.00	D	3.92	D	9.14	mg/L		104	(75%-125%)		03/14/18 15:01
Fluoride	2.50		0.623		3.10	mg/L		99	(75%-125%)		03/14/18 12:31
Nitrate-N	2.50	D	3.63	D	6.36	mg/L		109	(75%-125%)		03/14/18 15:01

**GEL LABORATORIES LLC**

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**QC Summary**

Workorder: 445810

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Ion Chromatography</b>											
Batch	1747061										
Nitrite-N	2.50	U	0.00		2.38	mg/L	95.4	(75%-125%)	LXA2	03/14/18	12:31
Sulfate	10.0	D	9.64	D	19.9	mg/L	103	(75%-125%)		03/14/18	15:01
<b>Titration and Ion Analysis</b>											
Batch	1748753										
QC1203993186	445810006	DUP									
Alkalinity, Total as CaCO3			111000		112000	ug/L	1.25	(0%-20%)	RXB5	03/23/18	16:40
QC1203993187	446025005	DUP									
Alkalinity, Total as CaCO3			127000		126000	ug/L	0.793	(0%-20%)		03/23/18	16:45
QC1203993185	LCS										
Alkalinity, Total as CaCO3	100000				107000	ug/L	107	(80%-120%)		03/23/18	16:37

**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.