

June 27, 2017



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June 26, 2017

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

Re: CHPRC SAF W17-006  
Work Order: 424840  
SDG: GEL424840

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 07, 2017. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

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

Sincerely,

*B Luthman*  
Brielle Luthman for  
Heather Shaffer  
Project Manager

Purchase Order: 300071-7H  
Chain of Custody: W17-006-111, W17-006-112 and W17-006-118  
Enclosures



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# Case Narrative

June 27, 2017

General Narrative  
for  
CH2MHill Plateau Remediation Company  
CHPRC SAF W17-006  
SDG: GEL424840

June 26, 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 07, 2017, 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>
424840001	B39NP5
424840002	B39NP6
424840003	B39NV1

**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.

June 27, 2017

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.

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

  
Brielle Luthman for  
Heather Shaffer  
Project Manager

June 27, 2017

General Chemistry  
Technical Case Narrative  
CH2MHill Plateau Remediation Company (CPRC)  
SDG #: GEL424840  
Work Order #: 424840

**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 1203805937 (Non SDG 424843007DUP), 1203805938 (Non SDG 424843007PS), 424840002 (B39NP6) and 424840003 (B39NV1) were diluted because target analyte concentrations exceeded the calibration range.

Analyte	424840	
	002	003
Chloride	20X	20X
Nitrate	20X	20X
Sulfate	20X	20X

**Miscellaneous Information**

**Manual Integrations**

Sample 424840001 (B39NP5) were manually integrated to correctly position the baseline as set in the calibration standards.

**Certification Statement**

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

# **Chain of Custody and Supporting Documentation**

81105

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.# W17-006-111  
Page 1 of 1

Collector: Juan Aguilar /CHPRC  
 SAF No.: W17-006  
 Project Title: RCRA, JUNE 2017  
 Shipped To (Lab): GEL Laboratories, LLC  
 Protocol: RCRA

Contact/Requester: Karen Waters-Husted  
 Sampling Origin: Hanford Site  
 Logbook No.: HNF-N-506 88171  
 Method of Shipment: Commercial Carrier  
 Priority: 30 Days  
 Telephone No.: 509-376-4650  
 Purchase Order/Charge Code: 300071  
 Ice Chest No.: 608-315  
 Bill of Lading/Air Bill No.: 779312220090  
 Offsite Property No.: 0002

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

SPECIAL INSTRUCTIONS: N/A  
 Hold Time:   
 Total Activity Exemption: Yes  No

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39NP5	N	W	6-6-17	0715	1x125-mL G/P	9056_ANIONS_IC: COMMON	48 Hours	Cool <=6C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
Juan Aguilar /CHPRC		Juan Aguilar /CHPRC	JUN 06 2017 1010	Janelle Zunker /CHPRC		Janelle Zunker /CHPRC	JUN 06 2017 1010	S = Soil, SE = Sediment, SO = Solid, SL = Sludge, W = Water, O = Oil, A = Air, DS = Drum Solids, DL = Drum Liquids, T = Tissue, WI = Wipe, L = Liquid, V = Vegetation, X = Other
Janelle Zunker /CHPRC		Janelle Zunker /CHPRC	JUN 06 2017 1400	FEDEX	FEDEX	FEDEX	JUN 06 2017 1400	
Janelle Zunker /CHPRC		Janelle Zunker /CHPRC	JUN 06 2017 1400	150 - SHACT 000NO-6/7/17	150 - SHACT 000NO-6/7/17	150 - SHACT 000NO-6/7/17	8:55	
Janelle Zunker /CHPRC		Janelle Zunker /CHPRC	JUN 06 2017 1400	Received By	Received By	Received By	8:55	

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process)  
 Disposed By:   
 Date/Time:   
 FSR ID = FSR8649  
 PRINTED ON 5/15/2017

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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

W17-006-112

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424840

Collector	Juan Aguilar /CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	W17-006	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	RCRA, JUNE 2017	Logbook No.	HNF-N-506 88/71	Ice Chest No.	QWS-315
Shipped To (Lab)	GEL Laboratories, LLC	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7799312220090
Protocol	RCRA	Priority:	30 Days	Offsite Property No.	9002
<p><b>POSSIBLE SAMPLE HAZARDS/REMARKS</b></p> <p>*** 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</p>		<p><b>SPECIAL INSTRUCTIONS</b></p> <p>N/A</p>		<p>Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	

Sample No.	Filter	* Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39NP6	N	W 6-6-17	0900	1x125-mL G/P	9056_ANIONS_IC: COMMON	48 Hours	Cool <=6C

Relinquished By	Juan Aguilar /CHPRC	Print	JUN 06 2017	Sign	JUN 06 2017	Date/Time	1010
Received By	Janelle Zuniker /CHPRC	Print	JUN 06 2017	Sign	JUN 06 2017	Date/Time	1010
Relinquished By	Janelle Zuniker /CHPRC	Print	JUN 06 2017	Sign	JUN 06 2017	Date/Time	1010
Received By	AL - STACY BOONE	Print	6-7-17	Sign	6-7-17	Date/Time	8:55

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

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

Date/Time

June 27, 2017

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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

W17-006-118

Page 1 of 1

424840

Collector	Juan Aguilar /CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	W17-006	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	RCRA, JUNE 2017	Logbook No.	HNF-N-506 88/71	Ice Chest No.	605315
Shipped To (Lab)	GEL Laboratories, LLC	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	1799312220090
Protocol	RCRA	Priority:	30 Days	Offsite Property No.	8002

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

**SPECIAL INSTRUCTIONS**  
 Hold Time  
 N/A

Total Activity Exemption: Yes  No

Sample No.	Filter	* Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39NV1	N	W 6-6-17	0931	1x125-mL G/P	9056_ANIONS_IC: COMMON	48 Hours	Cool <=6C

Relinquished By Juan Aguilar /CHPRC	Print 	Sign JUN 06 2017	Date/Time 1010	Received By Janelle Zanker /CHPRC	Print 	Sign JUN 06 2017	Date/Time 1010
Relinquished By Janelle Zanker /CHPRC	Print 	Sign JUN 06 2017	Date/Time 1440	Received By STACY BOONIS	Print FEDEX	Sign JUN 06 2017	Date/Time 1010
Relinquished By				Received By			

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

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

June 27, 2017

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# 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	

June 27, 2017

# Laboratory Certifications

## List of current GEL Certifications as of 26 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

# General Chem Analysis

# Case Narrative

General Chemistry  
Technical Case Narrative  
CH2MHill Plateau Remediation Company (CPRC)  
SDG #: GEL424840  
Work Order #: 424840

**Product: Ion Chromatography**

**Analytical Method:** 9056\_ANIONS\_IC

**Analytical Procedure:** GL-GC-E-086 REV# 25

**Analytical Batch:** 1671862

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>
424840001	B39NP5
424840002	B39NP6
424840003	B39NV1
1203805935	Method Blank (MB)
1203805936	Laboratory Control Sample (LCS)
1203805937	424843007(NonSDG) Sample Duplicate (DUP)
1203805938	424843007(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 1203805937 (Non SDG 424843007DUP), 1203805938 (Non SDG 424843007PS), 424840002 (B39NP6) and 424840003 (B39NV1) 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	424840	
	002	003
Chloride	20X	20X
Nitrate	20X	20X
Sulfate	20X	20X

**Miscellaneous Information**

**Manual Integrations**

Sample 424840001 (B39NP5) were manually integrated to correctly position the baseline as set in the calibration standards.

June 27, 2017

**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 27, 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: GEL424840 GEL Work Order: 424840

**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: Kristen Mizzell

Date: 26 JUN 2017

Title: Analyst I

# Sample Data Summary

## Certificate of Analysis

Report Date: June 26, 2017

Company : CH2MHill Plateau Remediation Company  
 Address : MSIN R3-50 CHPRC  
 PO Box 1600  
 Richland, Washington 99352  
 Contact: Mr. Scot Fitzgerald  
 Project: CHPRC SAF W17-006

Client Sample ID: B39NP5	Project: CPRCOW17006
Sample ID: 424840001	Client ID: CPRC001
Matrix: WATER	
Collect Date: 06-JUN-17 07:15	
Receive Date: 07-JUN-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: COMMON "As Received"												
Chloride	B	104	67.0	200	ug/L		1	MXL2	06/07/17	1104	1671862	1
Fluoride	U	33.0	33.0	500	ug/L		1					
Nitrate-N	U	33.0	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Sulfate	U	133	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                   | 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 |

## Certificate of Analysis

Report Date: June 26, 2017

Company : CH2MHill Plateau Remediation Company  
 Address : MSIN R3-50 CHPRC  
 PO Box 1600  
 Richland, Washington 99352  
 Contact: Mr. Scot Fitzgerald  
 Project: CHPRC SAF W17-006

Client Sample ID: B39NP6	Project: CPRCOW17006
Sample ID: 424840002	Client ID: CPRC001
Matrix: WATER	
Collect Date: 06-JUN-17 09:00	
Receive Date: 07-JUN-17	
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	223	33.0	500	ug/L		1	MXL2	06/07/17	1133	1671862	1
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Chloride	D	39600	1340	4000	ug/L		20	MXL2	06/07/17	1854	1671862	2
Nitrate-N	D	16900	660	2000	ug/L		20					
Sulfate	D	292000	2660	8000	ug/L		20					

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

## Certificate of Analysis

Report Date: June 26, 2017

Company : CH2MHill Plateau Remediation Company  
 Address : MSIN R3-50 CHPRC  
 PO Box 1600  
 Richland, Washington 99352  
 Contact: Mr. Scot Fitzgerald  
 Project: CHPRC SAF W17-006

Client Sample ID: B39NV1	Project: CPRCOW17006
Sample ID: 424840003	Client ID: CPRC001
Matrix: WATER	
Collect Date: 06-JUN-17 09:31	
Receive Date: 07-JUN-17	
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	207	33.0	500	ug/L		1	MXL2	06/07/17	1202	1671862	1
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Chloride	D	38900	1340	4000	ug/L		20	MXL2	06/07/17	1923	1671862	2
Nitrate-N	D	15200	660	2000	ug/L		20					
Sulfate	D	322000	2660	8000	ug/L		20					

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

# Quality Control Summary

# June 27, 2017 GEL LABORATORIES LLC

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

## QC Summary

Report Date: June 26, 2017

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CH2MHill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 424840

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Ion Chromatography</b>											
Batch	1671862										
QC1203805937	424843007	DUP									
Chloride	D	14800	D	14800	ug/L	0.237		(0%-20%)	MXL2	06/07/17	22:20
Fluoride	B	123	B	122	ug/L	0.98	^	(+/-500)		06/07/17	16:56
Nitrate-N	D	5370	D	5350	ug/L	0.224		(0%-20%)		06/07/17	22:20
Nitrite-N	U	33.0	U	33.0	ug/L	N/A				06/07/17	16:56
Sulfate	D	195000	D	195000	ug/L	0.043		(0%-20%)		06/07/17	22:20
QC1203805936	LCS										
Chloride	5000			4530	ug/L			90.5	(80%-120%)	06/07/17	10:34
Fluoride	2500			2310	ug/L			92.6	(80%-120%)		
Nitrate-N	2500			2280	ug/L			91.1	(80%-120%)		
Nitrite-N	2500			2320	ug/L			92.8	(80%-120%)		
Sulfate	10000			9260	ug/L			92.6	(80%-120%)		
QC1203805935	MB										
Chloride			U	67.0	ug/L					06/07/17	10:05
Fluoride			U	33.0	ug/L						
Nitrate-N			U	33.0	ug/L						

June 27, 2017

GEL LABORATORIES LLC

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

QC Summary

Workorder: 424840

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Ion Chromatography</b>											
Batch	1671862										
Nitrite-N			U	33.0	ug/L				MXL2	06/07/17	10:05
Sulfate			U	133	ug/L						
QC1203805938 424843007 PS											
Chloride	5.00	D	1.48 D	6.20	mg/L		94.4	(75%-125%)		06/07/17	22:49
Fluoride	2.50	B	0.123	2.40	mg/L		91	(75%-125%)		06/07/17	17:26
Nitrate-N	2.50	D	0.537 D	2.88	mg/L		93.7	(75%-125%)		06/07/17	22:49
Nitrite-N	2.50	U	0.00	2.32	mg/L		93	(75%-125%)		06/07/17	17:26
Sulfate	10.0	D	19.5 D	30.5	mg/L		110	(75%-125%)		06/07/17	22:49

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

June 27, 2017

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QC Summary

Workorder: 424840

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

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