



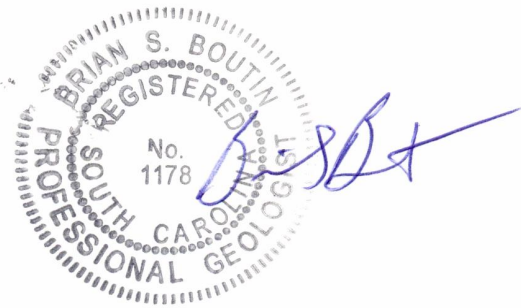
# 2017 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

## EPA CCR RULE COMPLIANCE

### SOUTH CAROLINA ELECTRIC & GAS: Cope Station: Class Three Landfill

January 2018

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## 1.0 INTRODUCTION

This document presents the *2017 Annual Groundwater Monitoring and Corrective Action* report for the Class 3 landfill at South Carolina Electric & Gas (SCE&G) Cope Generating Station in Cope, Orangeburg County, South Carolina in accordance with 40 CFR Part 257.90 (e). The Class 3 landfill is a coal combustion residuals (CCR) handling facility as defined by the US Environmental Protection Agency (EPA) CCR Rule (40 CFR Part 257.93).

This report presents the following information as required under 40 CFR Part 257.90 (e):

1. A facility map (aerial image) showing the Class 3 landfill and all background (or upgradient) and downgradient monitoring wells, including the well identification numbers, that are part of the groundwater monitoring program for the landfill;
2. Identification of additional monitoring wells that were installed during 2017, along with a narrative description of why the wells were installed;
3. In addition to all the monitoring data obtained under §§ 257.90 through 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs;
4. A narrative discussion of transitions between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels); and
5. Other information required to be included in the annual report as specified in Parts 257.90 through 257.98 of the CCR Rule.

The following sections present the components of the annual report.



## 2.0 GROUNDWATER MONITORING WELL SYSTEM

Six Type II groundwater monitoring wells (designated MW-LF-01 through MW-LF-06) were installed and developed at Cope Station Class Three Landfill in March 2016 to serve as EPA CCR Rule Compliance monitoring wells. Rising head permeability (slug) tests were conducted at monitoring wells MW-LF-01 through MW-LF-06 in May 2016. In addition, two existing monitoring wells which are also used for NPDES and South Carolina Department of Health and Environmental Control (SCDHEC) landfill groundwater monitoring compliance, were incorporated in the system network. The existing wells ( MW-06 and MW-16) are designated MW-BG-06 and MW-BG-16 in the CCR groundwater monitoring network. A South Carolina licensed well driller with S&ME, Inc. of Wilmington, North Carolina (SC License #1583) performed the drilling and monitoring well installations for monitoring wells MW-LF-01 through MW-LF-06. A South Carolina registered surveyor from the GEL Group, Inc. of Charleston, South Carolina (ELS SC license #15513) surveyed the monitoring wells for horizontal position, ground surface elevation and top of PVC pipe elevation. A site location map for Cope Station is presented as **Figure 1** and the locations and designations of the EPA CCR Rule Compliance monitoring wells are presented in **Figure 2**.

The eight groundwater monitoring wells are used to monitor groundwater quality in the vicinity of the Class Three landfill in compliance with the groundwater monitoring requirements of the US EPA CCR Rule. Monitoring well MW-LF-01, along with monitoring wells MW-BG-06 and MW-BG-16, serve as up-gradient wells to monitor the quality of background groundwater in the surficial aquifer entering the area of the Class Three landfill. Monitoring wells MW-LF-02 through MW-LF-06 serve as down gradient wells to monitor the quality of groundwater down gradient of the Class Three landfill.

### **3.0 GROUNDWATER MONITORING**

#### **3.1 Groundwater Sampling**

In accordance with 40 CFR Part 257.94 (b), eight independent groundwater samples were collected for field and laboratory analysis from monitoring wells MW-LF-01 through MW-LF-06 beginning in May 2016 and ending in July 2017. Groundwater samples were collected from monitoring wells MW-LF-01 through MW-LF-06 every other month throughout the monitoring period in accordance with the stipulations of the *Groundwater Sampling and Analysis Plan* for the Class 3 Landfill (May 2016; revised July 2016 and October 2016). One groundwater sample was collected for analysis during each of the independent monitoring events. Monitoring wells MW-BG-06 and MW-BG-16 were added to the monitoring well network as additional background monitoring wells beginning with the November 2016 groundwater monitoring event. Five independent groundwater samples were collected for field and laboratory analysis from background monitoring wells MW-BG-06 and MW-BG-16 during the period of November 2016 through July 2017 in accordance with the stipulations of the *Groundwater Sampling and Analysis Plan* for the Class 3 Landfill (May 2016; revised July 2016 and October 2016). One groundwater sample was collected from monitoring wells MW-BG-06 and MW-BG-16 during each of the independent monitoring events. All independent groundwater samples collected from the monitoring wells in accordance with 40 CFR Part 257.84 (b) during the period of May 2016 through July 2018 were analyzed by South Carolina Certified laboratories (SCE&G Central Laboratory (Certification Number 32006) and GEL Laboratories, LLC (Certification Numbers 10120001 and 10120002) for the constituents listed in Appendix III and Appendix IV of the EPA CCR Rule (40 CFR Parts 257.50 through 257.107).

In accordance with 40 CFR Part 257.94, the first round of Detection Monitoring was conducted in September 2017 and included groundwater sampling from monitoring wells MW-LF-01 through MW-LF-06, MW-BG-06 and MW-BG-16. One groundwater sample was collected from each of the monitoring wells during the Detection Monitoring event. All groundwater samples collected from the monitoring wells for Detection Monitoring in September 2017 were analyzed by South Carolina Certified laboratories (SCE&G Central Laboratory and GEL Laboratories, LLC) for the constituents listed in Appendix III of the EPA CCR Rule (40 CFR Parts 257.50 through 257.107). While Statistical Analysis of the data was not complete at the time, preliminary observed laboratory analytical results for non-metals indicated resampling should occur.



Accordingly, groundwater was resampled during a monitoring event conducted in October 2017.

### **3.2 Results of Field and Laboratory Analyses of Groundwater Samples**

The results of the field and laboratory analyses of the groundwater samples collected from the monitoring wells during the eight independent rounds of monitoring and the first round of Detection Monitoring are presented in **Appendix A**. The results indicate that the pH of the groundwater at the site, including at background locations, consistently falls below the EPA CCR Rule standard range of 6.5 to 8.5 standard units (generally within the range of 4.3 to 6 standard units). The results further indicate that the reported concentrations of chloride, fluoride, sulfate and total dissolved solids (TDS) for the groundwater samples collected from the monitoring wells during the September 2017 Detection Monitoring event were all below the corresponding maximum contaminant levels (MCLs). In addition, boron was not detected in any of the groundwater samples collected from the monitoring wells during the September 2017 Detection Monitoring event.

Statistical analysis to compare the groundwater quality in the downgradient monitoring wells to that of background water quality for the September 2017 Detection Monitoring event and the subsequent October 2017 resample event was completed on January 15, 2018 by O'Brien & Gere for South Carolina Electric & Gas. The results of the statistical analysis are presented in **Appendix B**. The statistical analysis indicates that the concentration of chloride reported in the groundwater sample collected from compliance monitoring well MW-LF-02 shows a statistically significant increase over background concentrations (as determined from the data for groundwater samples collected from background monitoring wells MW-LF-01, MW-BG-06 and MW-BG-16). No other statistically significant increases over background concentrations were observed for the CCR Rule Appendix III constituents in the groundwater samples collected from monitoring wells during the September 2017 Detection Monitoring event.

### **3.3 Alternate Source Demonstration**

In accordance with 40 CFR Part 257.94 (e) (2), SCE&G intends to conduct an Alternate Source Demonstration (ASD) for the statistically significant increase in the chloride concentration relative to background concentrations at monitoring well MW-LF-02. The ASD will rely, at a minimum, on historical groundwater quality data, as well as additional groundwater quality data for groundwater samples collected contemporaneously from



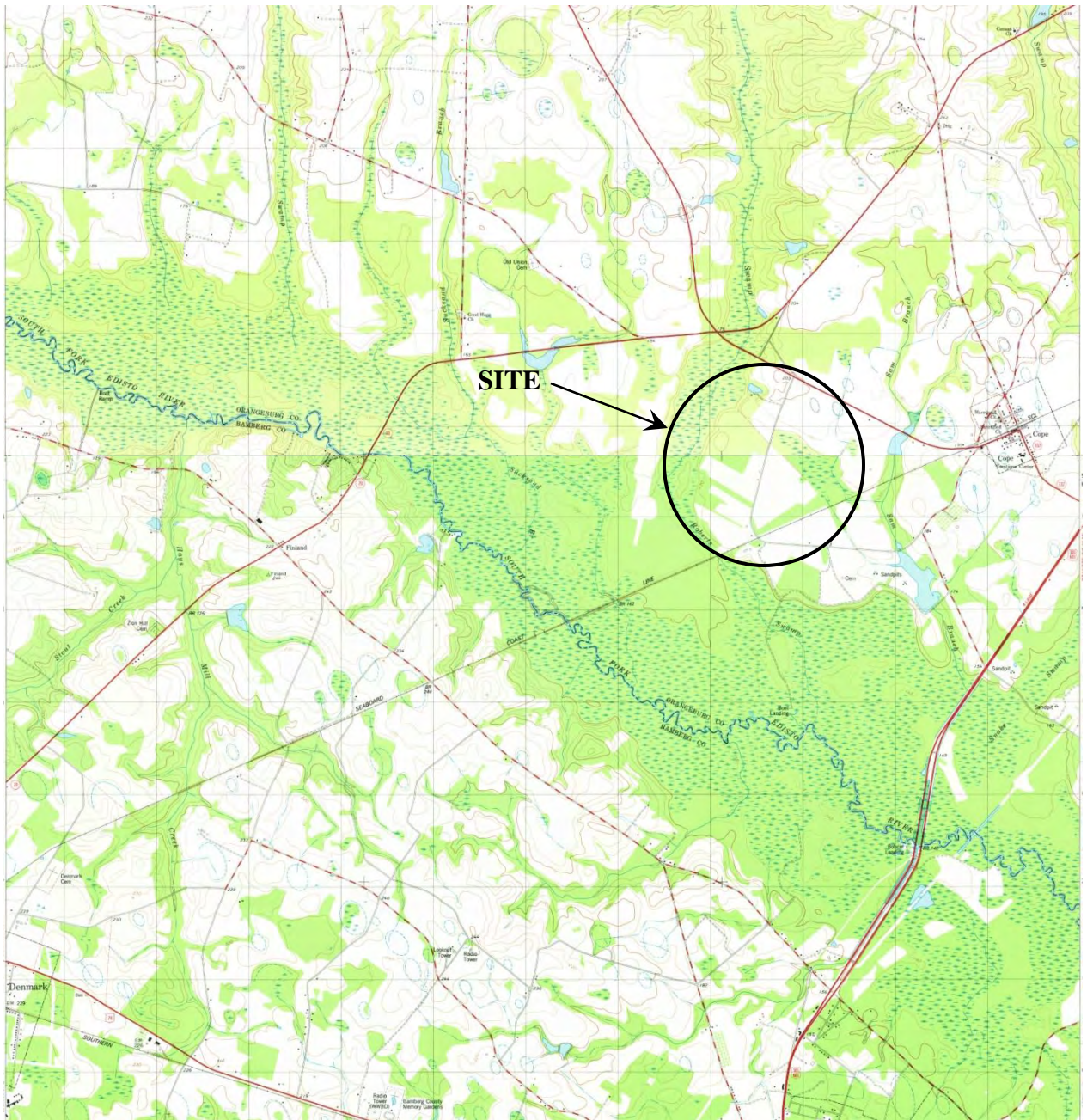
existing monitoring wells and additional monitoring wells installed specifically for the ASD.



#### **4.0 KEY PROJECT ACTIVITIES FOR 2018**

In 2018, the ASD and report of results will be completed by April 15, 2018 for inclusion in the plant operating record. It is anticipated that the ASD will demonstrate that the statistically significant increase in the concentration of chloride observed at monitoring well MW-LF-02 during the September 2017 Detection Monitoring event is likely attributable to a source(s) other than the Class 3 landfill. Consequently, it is further anticipated that detection monitoring will be resumed in 2018. Two rounds of detection monitoring are, therefore, anticipated to be completed in 2018 with groundwater samples being collected from monitoring wells MW-LF-01 through MW-LF-06, MW-BG-06 and MW-LF-16.





Source: USGS 7.5' Topographic Quadrangle Series  
Bamberg and Norway East, SC 1979

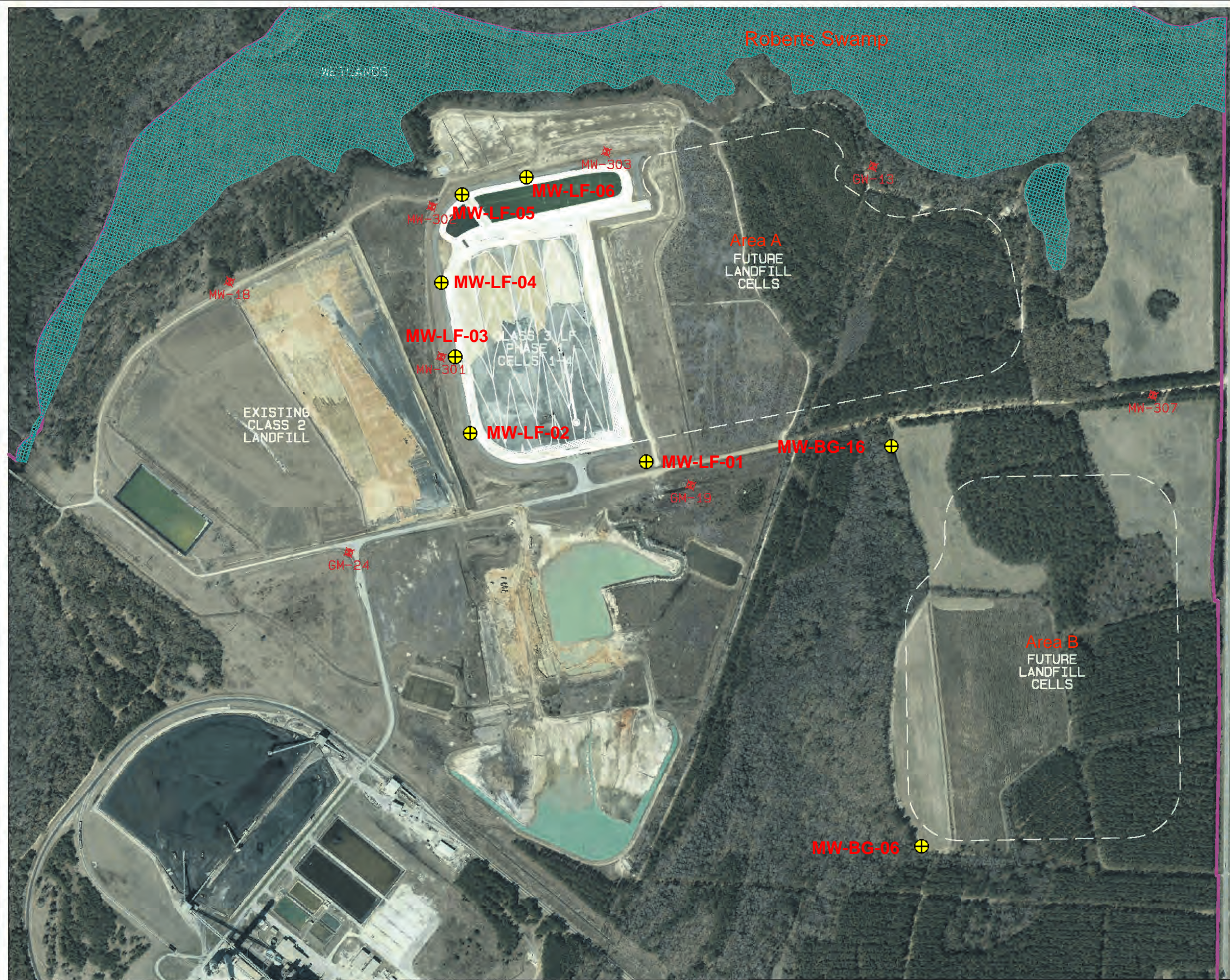


11112 Branding Iron Place  
Wendell, NC 27591  
Office: (919) 366-3663  
Cell: (919) 995-0363

**SITE LOCATION MAP**  
SCE&G Cope Generating Station  
Orangeburg County, South Carolina

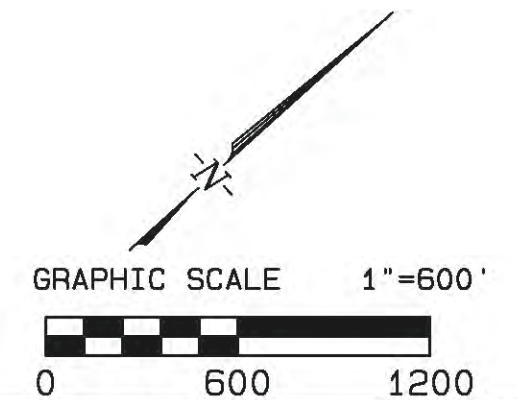
Drawn by:	Reviewed by:	Project #:	Drawing #:	Figure No.
USGS		Scale: 1:24,000	Drawing Date: 10/7/11	
				1

V:\SCE66\Cope\Class 3 LF PH1 Construction\Groundwater Monitoring\Cope Class 3 LF - GMP.pro Tue Aug 4, 2015 5:11:56PM



1. PHASE 1 LANDFILL GRADES SHOWN THIS SHEET REPRESENT TOP OF LINER GRADES
2. ORTHOPHOTOGRAPH DATED MARCH 2015

**⊕ LF-1 Class Three Landfill Monitoring Well for EPA CCR Rule Compliance**



REVISION	DATE
1)	
2)	
3)	
4)	

**GARRETT & MOORE**  
Engineering for the Power and Waste Industries

1258 BENSON ROAD  
GARNER, N.C. 27529  
TEL: 919 - 792 - 1900  
FAX: 866 - 311 - 7206  
www.garrett-moore.com

**COPE STATION  
CLASS THREE LANDFILL**

**EPA CCR Rule  
Compliance Monitoring  
Wells**

JOB NUMBER  
**SHEET  
2**



## **APPENDIX A**

### **Results of Field and Laboratory Analyses of Groundwater Samples**

**EPA CCR Rule Compliance Monitoring Wells  
Groundwater Monitoring Data  
South Carolina Electric & Gas: Cope Station Class Three Landfill**

Cope Station Class Three Landfill

Monitoring Well ID	Well Data			Gauging Date: 05/12/16				Final Water Quality Indicator Parameters					
	PVC Pipe Elevation, ft.	Ground Surface Elevation, ft.	Stickup, ft.	Initial Gauging		Final Gauging		Temperature °C	pH S.U.	Sp. Cond. µS/cm	Turbidity NTU	ORP mV	DO mg/L
				Depth to Groundwater, ft.	Groundwater Elevation, ft.	Depth to Groundwater, ft.	Groundwater Elevation, ft.						
LF-1	176.41	173.74	2.67	7.56	168.85	7.71	168.70	21.4	5.4	101	4.56	93.8	0.98
LF-2	190.08	187.15	2.93	25.38	164.70	25.52	164.56	23.8	5.1	175	3.21	127	1.19
LF-3	187.19	184.21	2.98	23.34	163.85	23.98	163.21	23.3	5.4	33	2.71	90.4	3.62
LF-4	184.20	181.37	2.83	23.29	160.91	23.31	160.89	24.6	4.8	35	4.91	120	4.43
LF-5	177.95	175.38	2.57	20.36	157.59	20.39	157.56	23.7	5.0	46	7.83	132	6.80
LF-6	178.57	175.75	2.82	19.12	159.45	19.15	159.42	23.8	4.8	62	5.75	129	5.82

## GEL LABORATORIES LLC

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

### Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC

Client SDG: 397444 GEL Work Order: 397444

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

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- H Analytical holding time was exceeded
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

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 Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Jake Crook.



Reviewed by \_\_\_\_\_

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: May 25, 2016

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd  
  
Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: LF-1  
Sample ID: 397444001  
Matrix: Ground Water  
Collect Date: 12-MAY-16 11:29  
Receive Date: 13-MAY-16  
Collector: Client

Project: SCEG01416C  
Client ID: GEEL003

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
SW846 9056A Anions "As Received"											
Fluoride	J	0.0679	0.033	0.100	mg/L	1	MXL2	05/16/16	2111	1567499	1
Metals Analysis-ICP-MS											
SW846 3005A/6020A Liquid "As Received"											
Lithium	U	ND	2.00	10.0	ug/L	1	BCD1	05/19/16	1552	1567505	2
Rad Gas Flow Proportional Counting											
GFPC, Ra228, Liquid "As Received"											
Radium-228	U	ND	1.81	3.00	pCi/L		AXM6	05/24/16	1212	1567557	3
Rad Radium-226											
Lucas Cell, Ra226, liquid "As Received"											
Radium-226	U	ND	0.672	1.00	pCi/L		LXP1	05/22/16	0920	1567603	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JP1	05/16/16	1725	1567504

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 3005A/6020A	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			98.4	(15%-125%)

Notes:

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: May 25, 2016

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd  
  
Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: LF-2  
Sample ID: 397444002  
Matrix: Ground Water  
Collect Date: 12-MAY-16 12:23  
Receive Date: 13-MAY-16  
Collector: Client  
Project: SCEG01416C  
Client ID: GEEL003

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
SW846 9056A Anions "As Received"											
Fluoride		0.131	0.033	0.100	mg/L	1	MXL2	05/16/16	2250	1567499	1
Metals Analysis-ICP-MS											
SW846 3005A/6020A Liquid "As Received"											
Lithium	U	ND	2.00	10.0	ug/L	1	BCD1	05/19/16	1620	1567505	2
Rad Gas Flow Proportional Counting											
GFPC, Ra228, Liquid "As Received"											
Radium-228		3.14	2.02	3.00	pCi/L		AXM6	05/24/16	1206	1567557	3
Rad Radium-226											
Lucas Cell, Ra226, liquid "As Received"											
Radium-226		7.16	0.540	1.00	pCi/L		LXP1	05/25/16	1030	1567603	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JP1	05/16/16	1725	1567504

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 3005A/6020A	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			99.6	(15%-125%)

Notes:

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: May 25, 2016

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd  
  
Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: LF-3  
Sample ID: 397444003  
Matrix: Ground Water  
Collect Date: 12-MAY-16 13:16  
Receive Date: 13-MAY-16  
Collector: Client  
Project: SCEG01416C  
Client ID: GEEL003

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
SW846 9056A Anions "As Received"											
Fluoride	U	ND	0.033	0.100	mg/L	1	MXL2	05/16/16	2323	1567499	1
Metals Analysis-ICP-MS											
SW846 3005A/6020A Liquid "As Received"											
Lithium	U	ND	2.00	10.0	ug/L	1	BCD1	05/19/16	1623	1567505	2
Rad Gas Flow Proportional Counting											
GFPC, Ra228, Liquid "As Received"											
Radium-228	U	ND	1.88	3.00	pCi/L		AXM6	05/24/16	1206	1567557	3
Rad Radium-226											
Lucas Cell, Ra226, liquid "As Received"											
Radium-226		1.54	0.577	1.00	pCi/L		LXP1	05/22/16	0920	1567603	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JP1	05/16/16	1725	1567504

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 3005A/6020A	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			92.2	(15%-125%)

Notes:



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## Certificate of Analysis

Report Date: May 25, 2016

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd  
  
Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: DUP Project: SCEG01416C  
Sample ID: 397444004 Client ID: GEEL003  
Matrix: Ground Water  
Collect Date: 12-MAY-16 13:30  
Receive Date: 13-MAY-16  
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
SW846 9056A Anions "As Received"											
Fluoride	U	ND	0.033	0.100	mg/L	1	MXL2	05/17/16	0102	1567499	1
Metals Analysis-ICP-MS											
SW846 3005A/6020A Liquid "As Received"											
Lithium	U	ND	2.00	10.0	ug/L	1	BCD1	05/19/16	1627	1567505	2
Rad Gas Flow Proportional Counting											
GFPC, Ra228, Liquid "As Received"											
Radium-228	U	ND	1.55	3.00	pCi/L		AXM6	05/24/16	1207	1567557	3
Rad Radium-226											
Lucas Cell, Ra226, liquid "As Received"											
Radium-226		1.03	0.722	1.00	pCi/L		LXP1	05/22/16	0920	1567603	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JP1	05/16/16	1725	1567504

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 3005A/6020A	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			100	(15%-125%)

Notes:

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## Certificate of Analysis

Report Date: May 25, 2016

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd  
  
Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: Field Blank Project: SCEG01416C  
Sample ID: 397444005 Client ID: GEEL003  
Matrix: Water  
Collect Date: 12-MAY-16 14:00  
Receive Date: 13-MAY-16  
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
SW846 9056A Anions "As Received"											
Fluoride	U	ND	0.033	0.100	mg/L	1	MXL2	05/17/16	0135	1567499	1
Metals Analysis-ICP-MS											
SW846 3005A/6020A Liquid "As Received"											
Lithium	U	ND	2.00	10.0	ug/L	1	BCD1	05/19/16	1630	1567505	2
Rad Gas Flow Proportional Counting											
GFPC, Ra228, Liquid "As Received"											
Radium-228	U	ND	1.34	3.00	pCi/L		AXM6	05/24/16	1207	1567557	3
Rad Radium-226											
Lucas Cell, Ra226, liquid "As Received"											
Radium-226	U	ND	0.704	1.00	pCi/L		LXP1	05/22/16	0920	1567603	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JP1	05/16/16	1725	1567504

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 3005A/6020A	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			95.9	(15%-125%)

Notes:

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: May 25, 2016

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd  
  
Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: LF-4 Project: SCEG01416C  
Sample ID: 397444006 Client ID: GEEL003  
Matrix: Ground Water  
Collect Date: 12-MAY-16 14:35  
Receive Date: 13-MAY-16  
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
SW846 9056A Anions "As Received"											
Fluoride	J	0.0498	0.033	0.100	mg/L	1	MXL2	05/17/16	0208	1567499	1
Metals Analysis-ICP-MS											
SW846 3005A/6020A Liquid "As Received"											
Lithium	U	ND	2.00	10.0	ug/L	1	BCD1	05/19/16	1634	1567505	2
Rad Gas Flow Proportional Counting											
GFPC, Ra228, Liquid "As Received"											
Radium-228	U	ND	1.12	3.00	pCi/L		AXM6	05/24/16	1208	1567557	3
Rad Radium-226											
Lucas Cell, Ra226, liquid "As Received"											
Radium-226		0.940	0.676	1.00	pCi/L		LXP1	05/22/16	0920	1567603	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JP1	05/16/16	1725	1567504

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 3005A/6020A	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			95.9	(15%-125%)

Notes:

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: May 25, 2016

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd  
  
Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: LF-5  
Sample ID: 397444007  
Matrix: Ground Water  
Collect Date: 12-MAY-16 15:38  
Receive Date: 13-MAY-16  
Collector: Client  
Project: SCEG01416C  
Client ID: GEEL003

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
SW846 9056A Anions "As Received"											
Fluoride	J	0.0453	0.033	0.100	mg/L	1	MXL2	05/17/16	0241	1567499	1
Metals Analysis-ICP-MS											
SW846 3005A/6020A Liquid "As Received"											
Lithium	U	ND	2.00	10.0	ug/L	1	BCD1	05/19/16	1637	1567505	2
Rad Gas Flow Proportional Counting											
GFPC, Ra228, Liquid "As Received"											
Radium-228		2.10	1.60	3.00	pCi/L		AXM6	05/24/16	1208	1567557	3
Rad Radium-226											
Lucas Cell, Ra226, liquid "As Received"											
Radium-226		1.42	0.636	1.00	pCi/L		LXP1	05/22/16	0950	1567603	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JP1	05/16/16	1725	1567504

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 3005A/6020A	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			87.8	(15%-125%)

Notes:

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: May 25, 2016

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd  
  
Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: LF-6  
Sample ID: 397444008  
Matrix: Ground Water  
Collect Date: 12-MAY-16 16:45  
Receive Date: 13-MAY-16  
Collector: Client  
Project: SCEG01416C  
Client ID: GEEL003

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
SW846 9056A Anions "As Received"											
Fluoride	J	0.0435	0.033	0.100	mg/L	1	MXL2	05/17/16	0313	1567499	1
Metals Analysis-ICP-MS											
SW846 3005A/6020A Liquid "As Received"											
Lithium	U	ND	2.00	10.0	ug/L	1	BCD1	05/19/16	1641	1567505	2
Rad Gas Flow Proportional Counting											
GFPC, Ra228, Liquid "As Received"											
Radium-228	U	ND	1.68	3.00	pCi/L		AXM6	05/24/16	1208	1567557	3
Rad Radium-226											
Lucas Cell, Ra226, liquid "As Received"											
Radium-226		0.916	0.462	1.00	pCi/L		LXP1	05/22/16	0950	1567603	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JP1	05/16/16	1725	1567504

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 3005A/6020A	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			95.1	(15%-125%)

Notes:



# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 397444

Page 2 of 3

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Ra-226</b>											
Batch		1567603									
Radium-226			2.32	3.17	pCi/L	31.1		(0% - 100%)	LXP1	05/22/16	10:50
QC1203549582	LCS										
Radium-226	24.4			29.5	pCi/L		121	(75%-125%)		05/25/16	10:30
QC1203549579	MB										
Radium-226			U	0.318	pCi/L					05/25/16	10:30
QC1203549581	397457016	MS									
Radium-226	122	2.32		131	pCi/L		105	(75%-125%)		05/22/16	10:50

**Notes:**

The Qualifiers in this report are defined as follows:

- \*\* Analyte is a Tracer compound
- < Result is less than value reported
- > Result is greater than value reported
- B The target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- E %difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- FA Failed analysis.
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded
- J Value is estimated
- K Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L Analyte present. Reported value may be biased low. Actual value is expected to be higher.
- M M if above MDC and less than LLD
- M REMP Result > MDC/CL and < RDL
- N Metals--The Matrix spike sample recovery is not within specified control limits
- N/A RPD or %Recovery limits do not apply.
- NI See case narrative
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- R Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
- R Sample results are rejected

# GEL LABORATORIES LLC

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## QC Summary

Workorder: 397444

Page 3 of 3

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
U											
UI											
UJ											
UL											
X											
Y											
Z											
^											
d											
e											
h											

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.





Central Laboratory (P-08)  
2102 North Lake Drive  
Columbia, SC 29212  
Tel: (803)217-9384  
Fax: (803) 217-9911

May 18, 2016

REPORT TO:
Mike Moore C221

Sample ID: **AB22395**

**Cope Well LF-1 RCRA/CCR**

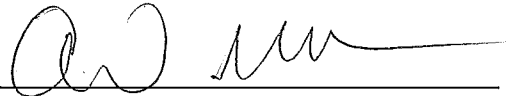
Date & Time Sampled: May 12, 2016 11:29  
Date & Time Submitted: May 13, 2016 16:40  
Collected by: C.SANDEL Location Code: COLF1TDS

LF-1

Login Record File: 160516001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	13.7	0.50	mg/L	5/16/16 04:12	LS
Sulfates by IC - 9056A	2.72	0.5	mg/L	5/16/16 04:12	LS
Total Dissolved Solid-SM2540C	72	2.0	mg/L	5/17/16 11:18	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 18, 2016

REPORT TO:
Mike Moore C221

Sample ID: **AB22396**

**Cope Well LF-2 RCRA/CCR**

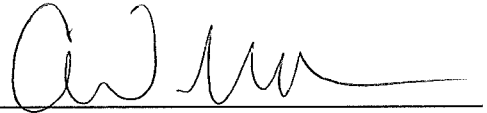
Date & Time Sampled: May 12, 2016 12:23  
 Date & Time Submitted: May 13, 2016 16:40  
 Collected by: C.SANDEL Location Code: COLF2TDS

LF-2

Login Record File: 160516001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	41.8	0.50	mg/L	5/16/16 04:12	LS
Sulfates by IC - 9056A	1.81	0.5	mg/L	5/16/16 04:12	LS
Total Dissolved Solid-SM2540C	89	2.0	mg/L	5/17/16 11:18	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 18, 2016

REPORT TO:
Mike Moore C221

Sample ID: **AB22397**

**Cope Well LF-3 RCRA/CCR**

Date & Time Sampled: May 12, 2016 13:16  
 Date & Time Submitted: May 13, 2016 16:40  
 Collected by: C.SANDEL Location Code: COLF3TDS

LF-3

Login Record File: 160516001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	3.92	0.50	mg/L	5/16/16 04:12	LS
Sulfates by IC - 9056A	1.43	0.5	mg/L	5/16/16 04:12	LS
Total Dissolved Solid-SM2540C	23	2.0	mg/L	5/17/16 11:18	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
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 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 18, 2016

REPORT TO:
Mike Moore C221

Sample ID: **AB22398**

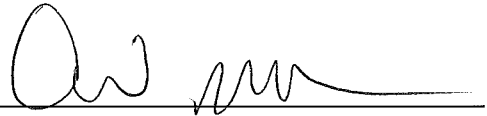
**Cope Well Duplicate (RCRA)**

Date & Time Sampled: May 12, 2016 13:30  
 Date & Time Submitted: May 13, 2016 16:40  
 Collected by: C.SANDEL Location Code: CODUPTDS

Login Record File: 160516001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	4.02	0.50	mg/L	5/16/16 04:12	LS
Sulfates by IC - 9056A	1.38	0.5	mg/L	5/16/16 04:12	LS
Total Dissolved Solid-SM2540C	24	2.0	mg/L	5/17/16 11:18	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



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Columbia, SC 29212  
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May 18, 2016

<b>REPORT TO:</b>
Mike Moore C221

Sample ID: **AB22399**

**Cope Well LF-4 RCRA/CCR**

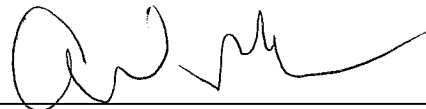
Date & Time Sampled: May 12, 2016 14:35  
Date & Time Submitted: May 13, 2016 16:40  
Collected by: C.SANDEL Location Code: COLF4TDS

LF-4

Login Record File: 160516001

<b>CERTIFIED BY SCDHEC (LAB ID 32006):</b>	<b>Result</b>	<b>Reporting Limit(MRL)</b>	<b>Units</b>	<b>Completed Analysis Date &amp; Time</b>	<b>Chemist</b>
Chlorides by IC- 9056A	2.86	0.50	mg/L	5/16/16 04:12	LS
Sulfates by IC - 9056A	.63	0.5	mg/L	5/16/16 04:12	LS
Total Dissolved Solid-SM2540C	5	2.0	mg/L	5/17/16 11:18	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
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 Columbia, SC 29212  
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May 18, 2016

REPORT TO:
Mike Moore C221

Sample ID: **AB22400**  
**Cope Well Field Blank (RCRA)**

Date & Time Sampled: May 12, 2016 14:00  
 Date & Time Submitted: May 13, 2016 16:40  
 Collected by: C.SANDEL Location Code: COFBTDS

Login Record File: 160516001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	Less than	0.50	mg/L	5/16/16 04:12	LS
Sulfates by IC - 9056A	Less than	0.5	mg/L	5/16/16 04:12	LS
Total Dissolved Solid-SM2540C	Less than	2.0	mg/L	5/17/16 11:18	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
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May 18, 2016

REPORT TO:
Mike Moore C221

Sample ID: **AB22401**

**Cope Well LF-5 RCRA/CCR**

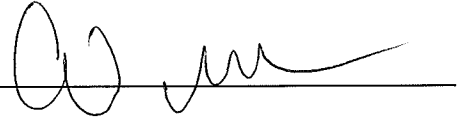
Date & Time Sampled: May 12, 2016 15:38  
 Date & Time Submitted: May 13, 2016 16:40  
 Collected by: C.SANDEL Location Code: COLF5TDS

LF-5

Login Record File: 160516001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	5.02	0.50	mg/L	5/16/16 04:12	LS
Sulfates by IC - 9056A	Less than	0.5	mg/L	5/16/16 04:12	LS
Total Dissolved Solid-SM2540C	22	2.0	mg/L	5/17/16 11:18	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
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May 18, 2016

REPORT TO:
Mike Moore C221

Sample ID: **AB22402**

**Cope Well LF-6 RCRA/CCR**

Date & Time Sampled: May 12, 2016 16:45  
 Date & Time Submitted: May 13, 2016 16:40  
 Collected by: C.SANDEL Location Code: COLF6TDS

LF-6

Login Record File: 160516001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	7.81	0.50	mg/L	5/16/16 04:12	LS
Sulfates by IC - 9056A	Less than	0.5	mg/L	5/16/16 04:12	LS
Total Dissolved Solid-SM2540C	45	2.0	mg/L	5/17/16 11:18	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 





Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 19, 2016

REPORT TO:
Mike Moore C221

Sample ID: **AB22403**

**Cope Well LF-1 T Metal RCRA/CCR**

Date & Time Sampled: May 12, 2016 11:29  
 Date & Time Submitted: May 13, 2016 16:40  
 Collected by: C.SANDEL Location Code: COLF1TM

LF-1

Login Record File: 160516001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony - 6020A (RCRA)	Less than	1.0	ppb	5/18/16 12:02	MC
Arsenic by ICP_MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Barium - 6010C (RCRA)	56.6	10.0	ppb	5/19/16 08:14	MC
Beryllium - 6010C (RCRA)	Less than	1.0	ppb	5/19/16 08:14	MC
Boron - 6010C (RCRA)	Less than	1000	ppb	5/19/16 08:14	MC
Cadmium by IPC-MS, EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Calcium - 6010C (RCRA)	4840	100	ppb	5/19/16 08:14	MC
Chromium by ICP_MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Cobalt - 6020A (RCRA)	4.1	1.0	ppb	5/18/16 12:02	MC
Lead by ICP-MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Mercury - 7470A (RCRA)	Less than	0.2	ppb	5/18/16 14:16	MC
Molybdenum - 6010C	Less than	5.0	ppb	5/19/16 08:14	MC
Selenium - 6020A (RCRA)	Less than	5.0	ppb	5/18/16 12:02	MC
Thallium - 6020A	Less than	1.0	ppb	5/18/16 12:02	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 19, 2016

REPORT TO:
Mike Moore C221

Sample ID: **AB22404**

**Cope Well LF-2 T Metal RCRA/CCR**

Date & Time Sampled: May 12, 2016 12:23  
 Date & Time Submitted: May 13, 2016 16:40  
 Collected by: C.SANDEL Location Code: COLF2TM

LF-2

Login Record File: 160516001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony - 6020A (RCRA)	Less than	1.0	ppb	5/18/16 12:02	MC
Arsenic by ICP_MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Barium - 6010C (RCRA)	139	10.0	ppb	5/19/16 08:14	MC
Beryllium - 6010C (RCRA)	Less than	1.0	ppb	5/19/16 08:14	MC
Boron - 6010C (RCRA)	Less than	1000	ppb	5/19/16 08:14	MC
Cadmium by IPC-MS, EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Calcium - 6010C (RCRA)	4900	100	ppb	5/19/16 08:14	MC
Chromium by ICP_MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Cobalt - 6020A (RCRA)	16.3	1.0	ppb	5/18/16 12:02	MC
Lead by ICP-MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Mercury - 7470A (RCRA)	Less than	0.2	ppb	5/18/16 14:16	MC
Molybdenum - 6010C	Less than	5.0	ppb	5/19/16 08:14	MC
Selenium - 6020A (RCRA)	Less than	5.0	ppb	5/18/16 12:02	MC
Thallium - 6020A	Less than	1.0	ppb	5/18/16 12:02	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 19, 2016

REPORT TO:
Mike Moore C221

Sample ID: **AB22405**

**Cope Well LF-3 T Metal RCRA/CCR**

Date & Time Sampled: May 12, 2016 13:16  
 Date & Time Submitted: May 13, 2016 16:40  
 Collected by: C.SANDEL Location Code: COLF3TM

LF-3

Login Record File: 160516001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony - 6020A (RCRA)	Less than	1.0	ppb	5/18/16 12:02	MC
Arsenic by ICP_MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Barium - 6010C (RCRA)	40.6	10.0	ppb	5/19/16 08:14	MC
Beryllium - 6010C (RCRA)	Less than	1.0	ppb	5/19/16 08:14	MC
Boron - 6010C (RCRA)	Less than	1000	ppb	5/19/16 08:14	MC
Cadmium by IPC-MS, EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Calcium - 6010C (RCRA)	2010	100	ppb	5/19/16 08:14	MC
Chromium by ICP_MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Cobalt - 6020A (RCRA)	2.1	1.0	ppb	5/18/16 12:02	MC
Lead by ICP-MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Mercury - 7470A (RCRA)	Less than	0.2	ppb	5/18/16 14:16	MC
Molybdenum - 6010C	Less than	5.0	ppb	5/19/16 08:14	MC
Selenium - 6020A (RCRA)	Less than	5.0	ppb	5/18/16 12:02	MC
Thallium - 6020A	Less than	1.0	ppb	5/18/16 12:02	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 19, 2016

REPORT TO:
Mike Moore C221

Sample ID: **AB22406**

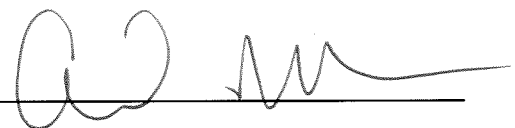
**Cope Well Duplicate Tota1 Metal (RCRA)**

Date & Time Sampled: May 12, 2016 13:30  
 Date & Time Submitted: May 13, 2016 16:40  
 Collected by: C.SANDEL Location Code: CODUPTM

Login Record File: 160516001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony - 6020A (RCRA)	Less than	1.0	ppb	5/18/16 12:02	MC
Arsenic by ICP_MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Barium - 6010C (RCRA)	44.9	10.0	ppb	5/19/16 08:14	MC
Beryllium - 6010C (RCRA)	Less than	1.0	ppb	5/19/16 08:14	MC
Boron - 6010C (RCRA)	Less than	1000	ppb	5/19/16 08:14	MC
Cadmium by IPC-MS, EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Calcium - 6010C (RCRA)	2250	100	ppb	5/19/16 08:14	MC
Chromium by ICP_MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Cobalt - 6020A (RCRA)	2.2	1.0	ppb	5/18/16 12:02	MC
Lead by ICP-MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Mercury - 7470A (RCRA)	Less than	0.2	ppb	5/18/16 14:16	MC
Molybdenum - 6010C	Less than	5.0	ppb	5/19/16 08:14	MC
Selenium - 6020A (RCRA)	Less than	5.0	ppb	5/18/16 12:02	MC
Thallium - 6020A	Less than	1.0	ppb	5/18/16 12:02	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 19, 2016

REPORT TO:
Mike Moore C221

Sample ID: **AB22407**

**Cope Well LF-4 T Metal RCRA/CCR**

Date & Time Sampled: May 12, 2016 14:35  
 Date & Time Submitted: May 13, 2016 16:40  
 Collected by: C.SANDEL Location Code: COLF4TM

LF-4

Login Record File: 160516001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony - 6020A (RCRA)	Less than	1.0	ppb	5/18/16 12:02	MC
Arsenic by ICP_MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Barium - 6010C (RCRA)	10.6	10.0	ppb	5/19/16 08:14	MC
Beryllium - 6010C (RCRA)	Less than	1.0	ppb	5/19/16 08:14	MC
Boron - 6010C (RCRA)	Less than	1000	ppb	5/19/16 08:14	MC
Cadmium by IPC-MS, EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Calcium - 6010C (RCRA)	1130	100	ppb	5/19/16 08:14	MC
Chromium by ICP_MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Cobalt - 6020A (RCRA)	1.9	1.0	ppb	5/18/16 12:02	MC
Lead by ICP-MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Mercury - 7470A (RCRA)	Less than	0.2	ppb	5/18/16 14:26	MC
Molybdenum - 6010C	Less than	5.0	ppb	5/19/16 08:14	MC
Selenium - 6020A (RCRA)	Less than	5.0	ppb	5/18/16 12:02	MC
Thallium - 6020A	Less than	1.0	ppb	5/18/16 12:02	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 19, 2016

REPORT TO:
Mike Moore C221

Sample ID: **AB22408**

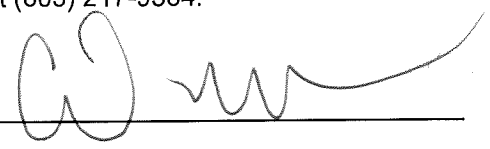
**Cope Well Field Blank Total Metal (RCRA)**

Date & Time Sampled: May 12, 2016 14:00  
 Date & Time Submitted: May 13, 2016 16:40  
 Collected by: C.SANDEL Location Code: COFBTM

Login Record File: 160516001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony - 6020A (RCRA)	Less than	1.0	ppb	5/18/16 12:02	MC
Arsenic by ICP_MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Barium - 6010C (RCRA)	Less than	10.0	ppb	5/19/16 08:14	MC
Beryllium - 6010C (RCRA)	Less than	1.0	ppb	5/19/16 08:14	MC
Boron - 6010C (RCRA)	Less than	1000	ppb	5/19/16 08:14	MC
Cadmium by IPC-MS, EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Calcium - 6010C (RCRA)	Less than	100	ppb	5/19/16 08:14	MC
Chromium by ICP_MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Cobalt - 6020A (RCRA)	Less than	1.0	ppb	5/18/16 12:02	MC
Lead by ICP-MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Mercury - 7470A (RCRA)	Less than	0.2	ppb	5/18/16 14:26	MC
Molybdenum - 6010C	Less than	5.0	ppb	5/19/16 08:14	MC
Selenium - 6020A (RCRA)	Less than	5.0	ppb	5/18/16 12:02	MC
Thallium - 6020A	Less than	1.0	ppb	5/18/16 12:02	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 19, 2016

REPORT TO:
Mike Moore C221

Sample ID: **AB22409**

**Cope Well LF-5 T Metal RCRA/CCR**

Date & Time Sampled: May 12, 2016 15:38  
 Date & Time Submitted: May 13, 2016 16:40  
 Collected by: C.SANDEL Location Code: COLF5TM

LF-5

Login Record File: 160516001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony - 6020A (RCRA)	Less than	1.0	ppb	5/18/16 12:02	MC
Arsenic by ICP_MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Barium - 6010C (RCRA)	19.4	10.0	ppb	5/19/16 08:14	MC
Beryllium - 6010C (RCRA)	Less than	1.0	ppb	5/19/16 08:14	MC
Boron - 6010C (RCRA)	Less than	1000	ppb	5/19/16 08:14	MC
Cadmium by IPC-MS, EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Calcium - 6010C (RCRA)	1890	100	ppb	5/19/16 08:14	MC
Chromium by ICP_MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Cobalt - 6020A (RCRA)	Less than	1.0	ppb	5/18/16 12:02	MC
Lead by ICP-MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Mercury - 7470A (RCRA)	Less than	0.2	ppb	5/18/16 14:26	MC
Molybdenum - 6010C	Less than	5.0	ppb	5/19/16 08:14	MC
Selenium - 6020A (RCRA)	Less than	5.0	ppb	5/18/16 12:02	MC
Thallium - 6020A	Less than	1.0	ppb	5/18/16 12:02	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 19, 2016

REPORT TO:
Mike Moore C221

Sample ID: **AB22410**

**Cope Well LF-6 T Metal RCRA/CCR**

Date & Time Sampled: May 12, 2016 16:45  
 Date & Time Submitted: May 13, 2016 16:40  
 Collected by: C.SANDEL Location Code: COLF6TM

LF-6

Login Record File: 160516001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony - 6020A (RCRA)	Less than	1.0	ppb	5/18/16 12:02	MC
Arsenic by ICP_MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Barium - 6010C (RCRA)	24.3	10.0	ppb	5/19/16 08:14	MC
Beryllium - 6010C (RCRA)	Less than	1.0	ppb	5/19/16 08:14	MC
Boron - 6010C (RCRA)	Less than	1000	ppb	5/19/16 08:14	MC
Cadmium by IPC-MS, EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Calcium - 6010C (RCRA)	2760	100	ppb	5/19/16 08:14	MC
Chromium by ICP_MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Cobalt - 6020A (RCRA)	1.0	1.0	ppb	5/18/16 12:02	MC
Lead by ICP-MS EPA 6020A	Less than	1.0	ppb	5/18/16 12:02	MC
Mercury - 7470A (RCRA)	Less than	0.2	ppb	5/18/16 14:26	MC
Molybdenum - 6010C	Less than	5.0	ppb	5/19/16 08:14	MC
Selenium - 6020A (RCRA)	Less than	5.0	ppb	5/18/16 12:02	MC
Thallium - 6020A	Less than	1.0	ppb	5/18/16 12:02	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



**EPA CCR Rule Compliance Monitoring Wells  
Groundwater Monitoring Data  
South Carolina Electric & Gas: Cope Station Class Three Landfill**

Cope Station Class Three Landfill

Monitoring Well ID	Well Data			Gauging Date:				Final Water Quality Indicator Parameters					
				7/14/16		7/14/16							
	PVC Pipe Elevation, ft.	Ground Surface Elevation, ft.	Stickup, ft.	Initial Gauging		Final Gauging		Temperature °C	pH S.U.	Sp. Cond. µS/cm	Turbidity NTU	ORP mV	DO mg/L
				Depth to Groundwater, ft.	Groundwater Elevation, ft.	Depth to Groundwater, ft.	Groundwater Elevation, ft.						
LF-1	176.41	173.74	2.67	8.82	167.59	9.07	167.34	28.8	4.2	92	26.60	228	0.80
LF-2	190.08	187.15	2.93	26.30	163.78	26.38	163.70	24.7	2.8	132	29.00	295	1.06
LF-3	187.19	184.21	2.98	24.53	162.66	24.79	162.40	24.7	4.1	30	13.60	196	1.61
LF-4	184.20	181.37	2.83	24.31	159.89	24.35	159.85	27.2	4.1	39	62.00	172	3.17
LF-5	177.95	175.38	2.57	21.25	156.70	21.25	156.70	25.6	3.8	51	18.40	208	5.67
LF-6	178.57	175.75	2.82	20.07	158.50	20.09	158.48	26.4	4.0	67	13.00	200	5.32

# GEL LABORATORIES LLC

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

## Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC

Client SDG: 401758 GEL Work Order: 401758

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

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- H Analytical holding time was exceeded
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

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 Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Jake Crook.

Reviewed by \_\_\_\_\_



# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: July 29, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-1	Project: SCEG01416C
Sample ID: 401758001	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 14-JUL-16 11:28	
Receive Date: 15-JUL-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Anions "As Received"												
Fluoride		0.140	0.033	0.100	mg/L		1	MAR1	07/22/16	0359	1582385	1
Metals Analysis-ICP-MS												
SW846 3005A/6020A Liquid "As Received"												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	07/20/16	1831	1582361	2
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228		1.57	1.16	3.00	pCi/L			AXM6	07/26/16	1629	1582433	3
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		1.21	0.406	1.00	pCi/L			LXP1	07/28/16	0755	1583314	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	SXW1	07/18/16	0752	1582360

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 3005A/6020A	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			91.7	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: July 29, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-2	Project: SCEG01416C
Sample ID: 401758002	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 14-JUL-16 12:39	
Receive Date: 15-JUL-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Anions "As Received"												
Fluoride		0.196	0.033	0.100	mg/L		1	MAR1	07/22/16	0528	1582385	1
Metals Analysis-ICP-MS												
SW846 3005A/6020A Liquid "As Received"												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	07/20/16	1852	1582361	2
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	ND	2.37	3.00	pCi/L			AXM6	07/26/16	1629	1582433	3
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		1.51	0.435	1.00	pCi/L			LXP1	07/28/16	0755	1583314	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	SXW1	07/18/16	0752	1582360

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 3005A/6020A	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			87.5	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: July 29, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-3	Project: SCEG01416C
Sample ID: 401758003	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 14-JUL-16 13:46	
Receive Date: 15-JUL-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Anions "As Received"												
Fluoride	U	ND	0.033	0.100	mg/L		1	MAR1	07/22/16	0558	1582385	1
Metals Analysis-ICP-MS												
SW846 3005A/6020A Liquid "As Received"												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	07/20/16	1854	1582361	2
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	ND	2.11	3.00	pCi/L			AXM6	07/26/16	1629	1582433	3
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		1.30	0.391	1.00	pCi/L			LXP1	07/28/16	0755	1583314	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	SXW1	07/18/16	0752	1582360

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 3005A/6020A	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			89.1	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: July 29, 2016

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd  
  
Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: Field Blank Project: SCEG01416C  
Sample ID: 401758004 Client ID: GEEL003  
Matrix: Water  
Collect Date: 14-JUL-16 14:00  
Receive Date: 15-JUL-16  
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Anions "As Received"												
Fluoride	U	ND	0.033	0.100	mg/L		1	MAR1	07/22/16	0628	1582385	1
Metals Analysis-ICP-MS												
SW846 3005A/6020A Liquid "As Received"												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	07/20/16	1857	1582361	2
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	ND	1.54	3.00	pCi/L			AXM6	07/26/16	1629	1582433	3
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.407	0.366	1.00	pCi/L			LXP1	07/28/16	0755	1583314	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	SXW1	07/18/16	0752	1582360

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 3005A/6020A	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			80.7	(15%-125%)

### 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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: July 29, 2016

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd  
  
Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: LF-4  
Sample ID: 401758005  
Matrix: Ground Water  
Collect Date: 14-JUL-16 15:11  
Receive Date: 15-JUL-16  
Collector: Client  
Project: SCEG01416C  
Client ID: GEEL003

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Anions "As Received"												
Fluoride	U	ND	0.033	0.100	mg/L		1	MAR1	07/22/16	0658	1582385	1
Metals Analysis-ICP-MS												
SW846 3005A/6020A Liquid "As Received"												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	07/20/16	1859	1582361	2
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	ND	1.35	3.00	pCi/L			AXM6	07/26/16	1629	1582433	3
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		3.81	0.289	1.00	pCi/L			LXP1	07/28/16	0755	1583314	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	SXW1	07/18/16	0752	1582360

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 3005A/6020A	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			98.7	(15%-125%)

### 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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: July 29, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-5	Project: SCEG01416C
Sample ID: 401758006	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 14-JUL-16 16:06	
Receive Date: 15-JUL-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Anions "As Received"												
Fluoride	U	ND	0.033	0.100	mg/L		1	MAR1	07/22/16	0728	1582385	1
Metals Analysis-ICP-MS												
SW846 3005A/6020A Liquid "As Received"												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	07/20/16	1902	1582361	2
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	ND	1.68	3.00	pCi/L			AXM6	07/26/16	1629	1582433	3
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.980	0.417	1.00	pCi/L			LXP1	07/28/16	0755	1583314	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	SXW1	07/18/16	0752	1582360

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 3005A/6020A	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			84.1	(15%-125%)

**Notes:**

Column headers are defined as follows:

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



# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: July 29, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: DUP	Project: SCEG01416C
Sample ID: 401758007	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 14-JUL-16 16:20	
Receive Date: 15-JUL-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Anions "As Received"												
Fluoride	U	ND	0.033	0.100	mg/L		1	MAR1	07/22/16	0858	1582385	1
Metals Analysis-ICP-MS												
SW846 3005A/6020A Liquid "As Received"												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	07/20/16	1904	1582361	2
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	ND	1.92	3.00	pCi/L			AXM6	07/26/16	1629	1582433	3
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		1.22	0.365	1.00	pCi/L			LXP1	07/28/16	0830	1583314	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	SXW1	07/18/16	0752	1582360

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 3005A/6020A	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			73.7	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: July 29, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-6	Project: SCEG01416C
Sample ID: 401758008	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 14-JUL-16 17:18	
Receive Date: 15-JUL-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Anions "As Received"												
Fluoride	J	0.0446	0.033	0.100	mg/L		1	MAR1	07/22/16	0928	1582385	1
Metals Analysis-ICP-MS												
SW846 3005A/6020A Liquid "As Received"												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	07/20/16	1907	1582361	2
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	ND	2.38	3.00	pCi/L			AXM6	07/26/16	1629	1582433	3
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		1.18	0.425	1.00	pCi/L			LXP1	07/28/16	0830	1583314	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	SXW1	07/18/16	0752	1582360

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 3005A/6020A	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			87.4	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## QC Summary

Report Date: July 29, 2016

Page 1 of 3

GEL Engineering, LLC  
2040 Savage Rd  
Charleston, South Carolina

Contact: Robert Gardner

Workorder: 401758

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Ion Chromatography</b>											
Batch	1582385										
QC1203586441	401758001	DUP									
Fluoride		0.140		0.141	mg/L	0.713 ^		(+/-0.100)	MAR1	07/22/16	04:29
QC1203586440	LCS										
Fluoride	2.50			2.53	mg/L		101	(90%-110%)		07/22/16	03:29
QC1203586439	MB										
Fluoride			U	ND	mg/L					07/22/16	02:59
QC1203586442	401758001	PS									
Fluoride	2.50	0.140		2.53	mg/L		95.8	(90%-110%)		07/22/16	04:59
<b>Metals Analysis - ICPMS</b>											
Batch	1582361										
QC1203586390	401758001	DUP									
Lithium			U	ND	U	ND	ug/L	N/A		BAJ	07/20/16 18:34
QC1203586389	LCS										
Lithium	50.0			57.6	ug/L		115	(80%-120%)		07/20/16	18:29
QC1203586388	MB										
Lithium			U	ND	ug/L					07/20/16	18:26
QC1203586391	401758001	MS									
Lithium	50.0	U	ND	56.2	ug/L		111	(75%-125%)		07/20/16	18:36
QC1203586392	401758001	SDILT									
Lithium		U	ND	U	ND	ug/L	N/A	(0%-10%)		07/20/16	18:41
<b>Rad Gas Flow</b>											
Batch	1582433										
QC1203586540	401758008	DUP									
Radium-228		U	0.314	U	0.605	pCi/L	N/A		N/A	AXM6	07/26/16 16:29
QC1203586541	LCS										
Radium-228	45.0			47.0	pCi/L		104	(75%-125%)		07/26/16	16:29
QC1203586539	MB										
Radium-228			U	-0.34	pCi/L					07/26/16	16:29
<b>Rad Ra-226</b>											
Batch	1583314										
QC1203588585	401758001	DUP									

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 401758

Page 2 of 3

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Ra-226</b>											
Batch	1583314										
Radium-226		1.21		1.53	pCi/L	23.5		(0% - 100%)	LXP1	07/28/16	09:35
QC1203588587	LCS										
Radium-226	24.4			28.0	pCi/L		115	(75%-125%)		07/28/16	09:35
QC1203588584	MB										
Radium-226			U	0.0423	pCi/L					07/28/16	09:35
QC1203588586	401758001 MS										
Radium-226	122	1.21		97.2	pCi/L		78.7	(75%-125%)		07/28/16	09:35

**Notes:**

The Qualifiers in this report are defined as follows:

- \*\* Analyte is a Tracer compound
- < Result is less than value reported
- > Result is greater than value reported
- B The target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- E %difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- FA Failed analysis.
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded
- J Value is estimated
- K Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L Analyte present. Reported value may be biased low. Actual value is expected to be higher.
- M M if above MDC and less than LLD
- M REMP Result > MDC/CL and < RDL
- N Metals--The Matrix spike sample recovery is not within specified control limits
- N/A RPD or %Recovery limits do not apply.
- NI See case narrative
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- R Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
- R Sample results are rejected

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 401758

Page 3 of 3

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
U											
UI											
UJ											
UL											
X											
Y											
Z											
^											
d											
e											
h											

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.



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

July 26, 2016

REPORT TO:
Mike Moore C221

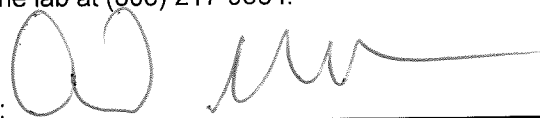
Sample ID: **AB22949 Cope Well LF-1 T Metal RCRA/CCR**  
 Date & Time Sampled: July 14, 2016 11:28  
 Date & Time Submitted: July 15, 2016 09:55  
 Collected by: ANDERSON,D Location Code: COLF1TM

LF-1

Login Record File: 160715002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	MDL	Units	Completed Analysis Date & Time		Chemist
Antimony - 6020A (RCRA)	Less than	5.0	ppb	7/22/16	09:17	MC
Arsenic by ICP_MS EPA 6020A	Less than	10.0	ppb	7/26/16	14:28	MC
Barium - 6010C (RCRA)	56.0	10.0	ppb	7/21/16	08:41	MC
Beryllium - 6010C (RCRA)	Less than	1.0	ppb	7/21/16	08:41	MC
Boron - 6010C (RCRA)	Less than	1000	ppb	7/21/16	08:41	MC
Cadmium by IPC-MS, EPA 6020A	Less than	1.0	ppb	7/22/16	09:17	MC
Calcium - 6010C (RCRA)	3770	100	ppb	7/21/16	08:41	MC
Chromium by ICP_MS EPA 6020A	Less than	1.0	ppb	7/26/16	14:28	MC
Cobalt - 6020A (RCRA)	5.1	1.0	ppb	7/26/16	14:28	MC
Lead by ICP-MS EPA 6020A	Less than	1.0	ppb	7/22/16	09:17	MC
Mercury - 7470A (RCRA)	Less than	0.2	ppb	7/19/16	14:13	MC
Molybdenum - 6010C	Less than	10.0	ppb	7/21/16	08:41	MC
Selenium - 6020A (RCRA)	Less than	10.0	ppb	7/26/16	14:28	MC
Thallium - 6020A	Less than	1.0	ppb	7/26/16	14:28	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved by: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

July 26, 2016

REPORT TO:
Mike Moore C221

Sample ID: **AB22951 Cope Well LF-2 T Metal RCRA/CCR**  
 Date & Time Sampled: July 14, 2016 12:39  
 Date & Time Submitted: July 15, 2016 09:55  
 Collected by: ANDERSON,D Location Code: COLF2TM

LF-2

Login Record File: 160715002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	MDL	Units	Completed Analysis Date & Time		Chemist
Antimony - 6020A (RCRA)	Less than	5.0	ppb	7/22/16	09:17	MC
Arsenic by ICP_MS EPA 6020A	Less than	10.0	ppb	7/26/16	14:28	MC
Barium - 6010C (RCRA)	111	10.0	ppb	7/21/16	08:41	MC
Beryllium - 6010C (RCRA)	Less than	1.0	ppb	7/21/16	08:41	MC
Boron - 6010C (RCRA)	Less than	1000	ppb	7/21/16	08:41	MC
Cadmium by IPC-MS, EPA 6020A	Less than	1.0	ppb	7/22/16	09:17	MC
Calcium - 6010C (RCRA)	3400	100	ppb	7/21/16	08:41	MC
Chromium by ICP_MS EPA 6020A	Less than	1.0	ppb	7/26/16	14:28	MC
Cobalt - 6020A (RCRA)	8.0	1.0	ppb	7/26/16	14:28	MC
Lead by ICP-MS EPA 6020A	Less than	1.0	ppb	7/22/16	09:17	MC
Mercury - 7470A (RCRA)	Less than	0.2	ppb	7/19/16	14:13	MC
Molybdenum - 6010C	Less than	10.0	ppb	7/21/16	08:41	MC
Selenium - 6020A (RCRA)	Less than	10.0	ppb	7/26/16	14:28	MC
Thallium - 6020A	Less than	1.0	ppb	7/26/16	14:28	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved by: \_\_\_\_\_



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

July 26, 2016

REPORT TO:
Mike Moore C221

Sample ID: **AB22953 Cope Well LF-3 T Metal RCRA/CCR**  
 Date & Time Sampled: July 14, 2016 13:46  
 Date & Time Submitted: July 15, 2016 09:55  
 Collected by: ANDERSON,D Location Code: COLF3TM

LF-3

Login Record File: 160715002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	MDL	Units	Completed Analysis Date & Time		Chemist
Antimony - 6020A (RCRA)	Less than	5.0	ppb	7/22/16	09:17	MC
Arsenic by ICP_MS EPA 6020A	Less than	10.0	ppb	7/26/16	14:28	MC
Barium - 6010C (RCRA)	31.7	10.0	ppb	7/21/16	08:41	MC
Beryllium - 6010C (RCRA)	Less than	1.0	ppb	7/21/16	08:41	MC
Boron - 6010C (RCRA)	Less than	1000	ppb	7/21/16	08:41	MC
Cadmium by IPC-MS, EPA 6020A	Less than	1.0	ppb	7/22/16	09:17	MC
Calcium - 6010C (RCRA)	1470	100	ppb	7/21/16	08:41	MC
Chromium by ICP_MS EPA 6020A	Less than	1.0	ppb	7/26/16	14:28	MC
Cobalt - 6020A (RCRA)	2.4	1.0	ppb	7/26/16	14:28	MC
Lead by ICP-MS EPA 6020A	Less than	1.0	ppb	7/22/16	09:17	MC
Mercury - 7470A (RCRA)	Less than	0.2	ppb	7/19/16	14:13	MC
Molybdenum - 6010C	Less than	10.0	ppb	7/21/16	08:41	MC
Selenium - 6020A (RCRA)	Less than	10.0	ppb	7/26/16	14:28	MC
Thallium - 6020A	Less than	1.0	ppb	7/26/16	14:28	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved by: 





Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

July 26, 2016

REPORT TO:
Mike Moore C221

Sample ID: **AB22955 Cope Well Field Blank**  
 Date & Time Sampled: July 14, 2016 14:00  
 Date & Time Submitted: July 15, 2016 09:55  
 Collected by: ANDERSON,D Location Code: COLF3TM

LF-3

Login Record File: 160715002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	MDL	Units	Completed Analysis Date & Time		Chemist
Antimony - 6020A (RCRA)	Less than	5.0	ppb	7/22/16	09:17	MC
Arsenic by ICP_MS EPA 6020A	Less than	10.0	ppb	7/26/16	14:28	MC
Barium - 6010C (RCRA)	Less than	10.0	ppb	7/21/16	08:41	MC
Beryllium - 6010C (RCRA)	Less than	1.0	ppb	7/21/16	08:41	MC
Boron - 6010C (RCRA)	Less than	1000	ppb	7/21/16	08:41	MC
Cadmium by IPC-MS, EPA 6020A	Less than	1.0	ppb	7/22/16	09:17	MC
Calcium - 6010C (RCRA)	Less than	100	ppb	7/21/16	08:41	MC
Chromium by ICP_MS EPA 6020A	Less than	1.0	ppb	7/26/16	14:28	MC
Cobalt - 6020A (RCRA)	Less than	1.0	ppb	7/26/16	14:28	MC
Lead by ICP-MS EPA 6020A	Less than	1.0	ppb	7/22/16	09:17	MC
Mercury - 7470A (RCRA)	Less than	0.2	ppb	7/19/16	14:13	MC
Molybdenum - 6010C	Less than	10.0	ppb	7/21/16	08:41	MC
Selenium - 6020A (RCRA)	Less than	10.0	ppb	7/26/16	14:28	MC
Thallium - 6020A	Less than	1.0	ppb	7/26/16	14:28	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved by: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

July 26, 2016

REPORT TO:
Mike Moore C221

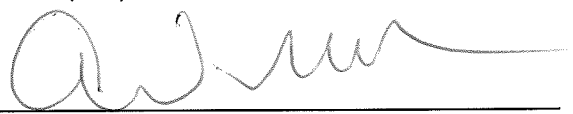
Sample ID: **AB22957 Cope Well LF-4 T Metal RCRA/CCR**  
 Date & Time Sampled: July 14, 2016 15:11  
 Date & Time Submitted: July 15, 2016 09:55  
 Collected by: ANDERSON,D Location Code: COLF4TM

LF-4

Login Record File: 160715002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	MDL	Units	Completed Analysis Date & Time		Chemist
Antimony - 6020A (RCRA)	Less than	5.0	ppb	7/22/16	09:17	MC
Arsenic by ICP_MS EPA 6020A	Less than	10.0	ppb	7/26/16	14:28	MC
Barium - 6010C (RCRA)	Less than	10.0	ppb	7/21/16	08:41	MC
Beryllium - 6010C (RCRA)	Less than	1.0	ppb	7/21/16	08:41	MC
Boron - 6010C (RCRA)	Less than	1000	ppb	7/21/16	08:41	MC
Cadmium by IPC-MS, EPA 6020A	Less than	1.0	ppb	7/22/16	09:17	MC
Calcium - 6010C (RCRA)	1040	100	ppb	7/21/16	08:41	MC
Chromium by ICP_MS EPA 6020A	Less than	1.0	ppb	7/26/16	14:28	MC
Cobalt - 6020A (RCRA)	1.2	1.0	ppb	7/26/16	14:28	MC
Lead by ICP-MS EPA 6020A	Less than	1.0	ppb	7/22/16	09:17	MC
Mercury - 7470A (RCRA)	Less than	0.2	ppb	7/19/16	14:13	MC
Molybdenum - 6010C	Less than	10.0	ppb	7/21/16	08:41	MC
Selenium - 6020A (RCRA)	Less than	10.0	ppb	7/26/16	14:28	MC
Thallium - 6020A	Less than	1.0	ppb	7/26/16	14:28	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved by: 



**Central Laboratory (P-08)**  
**2102 North Lake Drive**  
**Columbia, SC 29212**  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

July 26, 2016

REPORT TO:
Mike Moore C221

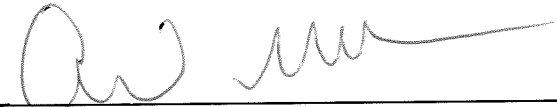
Sample ID: **AB22959 Cope Well LF-5 T Metal RCRA/CCR**  
 Date & Time Sampled: July 14, 2016 16:06  
 Date & Time Submitted: July 15, 2016 09:55  
 Collected by: ANDERSON,D Location Code: COLF5TM

LF-5

Login Record File: 160715002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	MDL	Units	Completed Analysis Date & Time		Chemist
Antimony - 6020A (RCRA)	Less than	5.0	ppb	7/22/16	09:17	MC
Arsenic by ICP_MS EPA 6020A	Less than	10.0	ppb	7/26/16	14:28	MC
Barium - 6010C (RCRA)	18.6	10.0	ppb	7/21/16	08:41	MC
Beryllium - 6010C (RCRA)	Less than	1.0	ppb	7/21/16	08:41	MC
Boron - 6010C (RCRA)	Less than	1000	ppb	7/21/16	08:41	MC
Cadmium by IPC-MS, EPA 6020A	Less than	1.0	ppb	7/22/16	09:17	MC
Calcium - 6010C (RCRA)	1830	100	ppb	7/21/16	08:41	MC
Chromium by ICP_MS EPA 6020A	Less than	1.0	ppb	7/26/16	14:28	MC
Cobalt - 6020A (RCRA)	Less than	1.0	ppb	7/26/16	14:28	MC
Lead by ICP-MS EPA 6020A	Less than	1.0	ppb	7/22/16	09:17	MC
Mercury - 7470A (RCRA)	Less than	0.2	ppb	7/19/16	14:13	MC
Molybdenum - 6010C	Less than	10.0	ppb	7/21/16	08:41	MC
Selenium - 6020A (RCRA)	Less than	10.0	ppb	7/26/16	14:28	MC
Thallium - 6020A	Less than	1.0	ppb	7/26/16	14:28	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved by: 



**Central Laboratory (P-08)**  
**2102 North Lake Drive**  
**Columbia, SC 29212**  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

July 26, 2016

REPORT TO:
Mike Moore C221

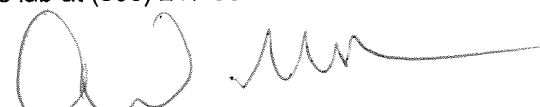
Sample ID: **AB22961**    **Cope Well LF-5 T Metal RCRA/CCR**  
 Date & Time Sampled: July 14, 2016    16:20  
 Date & Time Submitted: July 15, 2016    09:55  
 Collected by: ANDERSON,D    Location Code: COLF5TM

LF-5

Login Record File: 160715002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	MDL	Units	Completed Analysis Date & Time		Chemist
Antimony - 6020A (RCRA)	Less than	5.0	ppb	7/22/16	09:17	MC
Arsenic by ICP_MS EPA 6020A	Less than	10.0	ppb	7/26/16	14:28	MC
Barium - 6010C (RCRA)	19.7	10.0	ppb	7/21/16	08:41	MC
Beryllium - 6010C (RCRA)	Less than	1.0	ppb	7/21/16	08:41	MC
Boron - 6010C (RCRA)	Less than	1000	ppb	7/21/16	08:41	MC
Cadmium by IPC-MS, EPA 6020A	Less than	1.0	ppb	7/22/16	09:17	MC
Calcium - 6010C (RCRA)	1910	100	ppb	7/21/16	08:41	MC
Chromium by ICP_MS EPA 6020A	Less than	1.0	ppb	7/26/16	14:28	MC
Cobalt - 6020A (RCRA)	Less than	1.0	ppb	7/26/16	14:28	MC
Lead by ICP-MS EPA 6020A	Less than	1.0	ppb	7/22/16	09:17	MC
Mercury - 7470A (RCRA)	Less than	0.2	ppb	7/19/16	14:13	MC
Molybdenum - 6010C	Less than	10.0	ppb	7/21/16	08:41	MC
Selenium - 6020A (RCRA)	Less than	10.0	ppb	7/26/16	14:28	MC
Thallium - 6020A	Less than	1.0	ppb	7/26/16	14:28	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved by: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

July 26, 2016

REPORT TO:
Mike Moore C221

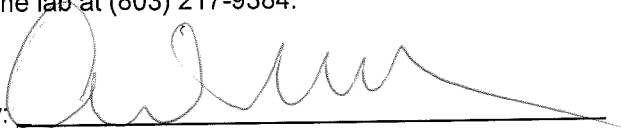
Sample ID: **AB22963 Cope Well LF-6 T Metal RCRA/CCR**  
 Date & Time Sampled: July 14, 2016 17:18  
 Date & Time Submitted: July 15, 2016 09:55  
 Collected by: ANDERSON,D Location Code: COLF6TM

LF-6

Login Record File: 160715002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	MDL	Units	Completed Analysis Date & Time		Chemist
Antimony - 6020A (RCRA)	Less than	5.0	ppb	7/22/16	09:17	MC
Arsenic by ICP_MS EPA 6020A	Less than	10.0	ppb	7/26/16	14:28	MC
Barium - 6010C (RCRA)	23.7	10.0	ppb	7/21/16	08:41	MC
Beryllium - 6010C (RCRA)	Less than	1.0	ppb	7/21/16	08:41	MC
Boron - 6010C (RCRA)	Less than	1000	ppb	7/21/16	08:41	MC
Cadmium by IPC-MS, EPA 6020A	Less than	1.0	ppb	7/22/16	09:17	MC
Calcium - 6010C (RCRA)	2620	100	ppb	7/21/16	08:41	MC
Chromium by ICP_MS EPA 6020A	Less than	1.0	ppb	7/26/16	14:28	MC
Cobalt - 6020A (RCRA)	1.0	1.0	ppb	7/26/16	14:28	MC
Lead by ICP-MS EPA 6020A	Less than	1.0	ppb	7/22/16	09:17	MC
Mercury - 7470A (RCRA)	Less than	0.2	ppb	7/19/16	14:13	MC
Molybdenum - 6010C	Less than	10.0	ppb	7/21/16	08:41	MC
Selenium - 6020A (RCRA)	Less than	10.0	ppb	7/26/16	14:28	MC
Thallium - 6020A	Less than	1.0	ppb	7/26/16	14:28	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved by: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB22948**

**Cope Well LF-1 RCRA/CCR**

Date & Time Sampled: July 14, 2016 11:28  
 Date & Time Submitted: July 15, 2016 09:55  
 Collected by: ANDERSON,D Location Code: COLF1TDS

LF-1

Login Record File: 160715002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	19	0.50	ppm	7/18/16 21:37	LS
pH by SM4500HB	5.49	0.00	S.U.	7/20/16 09:43	PRC
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC - 9056A	1.9	0.5	ppm	7/18/16 21:37	LS
Total Dissolved Solid-SM2540C	56	2.0	mg/L	7/18/16 15:23	PRC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



**Central Laboratory (P-08)**  
**2102 North Lake Drive**  
**Columbia, SC 29212**  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB22950**

**Cope Well LF-2 RCRA/CCR**

Date & Time Sampled: July 14, 2016 12:39  
 Date & Time Submitted: July 15, 2016 09:55  
 Collected by: ANDERSON,D Location Code: COLF2TDS

LF-2

Login Record File: 160715002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	32	1.0	ppm	7/18/16 21:37	LS
pH by SM4500HB	5.68	0.00	S.U.	7/20/16 09:43	PRC
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC - 9056A	3.1	1.0	ppm	7/18/16 21:37	LS
Total Dissolved Solid-SM2540C	49	2.0	mg/L	7/18/16 15:23	PRC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



**Central Laboratory (P-08)**  
**2102 North Lake Drive**  
**Columbia, SC 29212**  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB22952**

**Cope Well LF-3 RCRA/CCR**

Date & Time Sampled: July 14, 2016 13:46  
 Date & Time Submitted: July 15, 2016 09:55  
 Collected by: ANDERSON,D Location Code: COLF3TDS

LF-3

Login Record File: 160715002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	3.3	0.50	ppm	7/18/16 22:34	LS
pH by SM4500HB	6.08	0.00	S.U.	7/20/16 09:43	PRC
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC - 9056A	less than	0.5	ppm	7/18/16 22:34	LS
Total Dissolved Solid-SM2540C	17	2.0	mg/L	7/18/16 15:23	PRC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_





**Central Laboratory (P-08)**  
**2102 North Lake Drive**  
**Columbia, SC 29212**  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB22954**

**Cope Well Field Blank**

Date & Time Sampled: July 14, 2016 14:00  
 Date & Time Submitted: July 15, 2016 09:55  
 Collected by: ANDERSON,D Location Code: COLF3TDS

LF-3

Login Record File: 160715002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	less than	0.50	ppm	7/18/16 23:03	LS
pH by SM4500HB	7.34	0.00	S.U.	7/20/16 09:43	PRC
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC - 9056A	less than	0.5	ppm	7/18/16 23:03	LS
Total Dissolved Solid-SM2540C	14	2.0	mg/L	7/18/16 15:23	PRC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



**Central Laboratory (P-08)**  
**2102 North Lake Drive**  
**Columbia, SC 29212**  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB22956**

**Cope Well LF-4 RCRA/CCR**

Date & Time Sampled: July 14, 2016 15:11  
 Date & Time Submitted: July 15, 2016 09:55  
 Collected by: ANDERSON,D Location Code: COLF4TDS

LF-4

Login Record File: 160715002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	2.9	0.50	ppm	7/19/16 01:12	LS
pH by SM4500HB	5.87	0.00	S.U.	7/20/16 09:43	PRC
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC - 9056A	0.83	0.5	ppm	7/19/16 01:12	LS
Total Dissolved Solid-SM2540C	20	2.0	mg/L	7/18/16 15:23	PRC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB22958**

**Cope Well LF-5 RCRA/CCR**

Date & Time Sampled: July 14, 2016 16:06  
 Date & Time Submitted: July 15, 2016 09:55  
 Collected by: ANDERSON,D Location Code: COLF5TDS

LF-5

Login Record File: 160715002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	5.35	0.50	mg/L	7/27/16 15:31	EB
pH by SM4500HB	6.52	0.00	S.U.	7/20/16 09:43	PRC
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC - 9056A	Less than	0.5	mg/L	7/27/16 15:31	EB
Total Dissolved Solid-SM2540C	28	2.0	mg/L	7/18/16 15:23	PRC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB22960**

**Cope Well LF-5 RCRA/CCR Duplicate**

Date & Time Sampled: July 14, 2016 16:20  
 Date & Time Submitted: July 15, 2016 09:55  
 Collected by: ANDERSON,D Location Code: COLF5TDS

LF-5

Login Record File: 160715002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	5.3	0.50	ppm	7/19/16 01:40	LS
pH by SM4500HB	6.55	0.00	S.U.	7/20/16 09:43	PRC
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC - 9056A	less than	0.5	ppm	7/19/16 01:40	LS
Total Dissolved Solid-SM2540C	31	2.0	mg/L	7/18/16 15:23	PRC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB22962**

**Cope Well LF-6 RCRA/CCR**

Date & Time Sampled: July 14, 2016 17:18  
 Date & Time Submitted: July 15, 2016 09:55  
 Collected by: ANDERSON,D Location Code: COLF6TDS

LF-6

Login Record File: 160715002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	7.9	0.50	ppm	7/19/16 01:55	LS
pH by SM4500HB	6.55	0.00	S.U.	7/20/16 09:43	PRC
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC - 9056A	less than	0.5	ppm	7/19/16 01:55	LS
Total Dissolved Solid-SM2540C	37	2.0	mg/L	7/18/16 15:23	PRC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_

**EPA CCR Rule Compliance Monitoring Wells  
Groundwater Monitoring Data  
South Carolina Electric & Gas: Cope Station Class Three Landfill**

Cope Station Class Three Landfill

Monitoring Well ID	Well Data			Gauging Date: 09/14/16				Final Water Quality Indicator Parameters					
	PVC Pipe Elevation, ft.	Ground Surface Elevation, ft.	Stickup, ft.	Initial Gauging		Final Gauging		Temperature °C	pH S.U.	Sp. Cond. µS/cm	Turbidity NTU	ORP mV	DO mg/L
				Depth to Groundwater, ft.	Groundwater Elevation, ft.	Depth to Groundwater, ft.	Groundwater Elevation, ft.						
LF-1	176.41	173.74	2.67	8.13	168.28	8.44	167.97	27.3	5.0	65	6.20	259	4.41
LF-2	190.08	187.15	2.93	25.40	164.68	25.54	164.54	26.1	4.4	142	5.21	346	1.81
LF-3	187.19	184.21	2.98	23.60	163.59	24.81	162.38	26.7	4.5	32	5.59	339	2.12
LF-4	184.20	181.37	2.83	24.03	160.17	24.11	160.09	24.4	4.1	47	8.33	377	3.66
LF-5	177.95	175.38	2.57	20.83	157.12	20.86	157.09	26.5	4.8	54	4.09	288	3.90
LF-6	178.57	175.75	2.82	20.41	158.16	20.42	158.15	24.6	4.6	71	4.36	345	4.89

# GEL LABORATORIES LLC

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

## Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC

Client SDG: 406126 GEL Work Order: 406126

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

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- H Analytical holding time was exceeded
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

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 Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Jake Crook.

Reviewed by \_\_\_\_\_



# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: October 11, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-1	Project: SCEG01416C
Sample ID: 406126001	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 14-SEP-16 12:04	
Receive Date: 16-SEP-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		6.37	0.067	0.200	mg/L		1	MAR1	09/27/16	1519	1599649	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	SKJ	09/20/16	1420	1599584	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		1.60	1.40	3.00	pCi/L			AXM6	10/03/16	1640	1602003	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		1.17	0.410	1.00	pCi/L			LXP1	10/05/16	0907	1600164	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	09/16/16	1840	1599583

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			97.7	(15%-125%)

**Notes:**

Column headers are defined as follows:

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



# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: October 11, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: Field Blank	Project: SCEG01416C
Sample ID: 406126002	Client ID: GEEL003
Matrix: Water	
Collect Date: 14-SEP-16 12:45	
Receive Date: 16-SEP-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride	U	ND	0.067	0.200	mg/L		1	MAR1	09/27/16	1549	1599649	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	SKJ	09/20/16	1427	1599584	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	2.11	3.00	pCi/L			AXM6	10/03/16	1640	1602003	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226	U	ND	0.428	1.00	pCi/L			LXP1	10/05/16	0907	1600164	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	09/16/16	1840	1599583

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			61.3	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: October 11, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-2	Project: SCEG01416C
Sample ID: 406126003	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 14-SEP-16 12:59	
Receive Date: 16-SEP-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Fluoride	J	0.0943	0.033	0.100	mg/L		1	MAR1	09/27/16	1618	1599649	1
Chloride		25.9	0.335	1.00	mg/L		5	MXL2	09/28/16	1221	1599649	2
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	SKJ	09/20/16	1432	1599584	3
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		2.70	1.82	3.00	pCi/L			AXM6	10/03/16	1639	1602003	4
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		1.44	0.269	1.00	pCi/L			LXP1	10/05/16	0940	1600164	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	09/16/16	1840	1599583

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	EPA 200.8 SC_NPDES	
4	EPA 904.0/SW846 9320 Modified	
5	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			78.1	(15%-125%)

**Notes:**

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: October 11, 2016

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: LF-2

Sample ID: 406126003

Project: SCEG01416C

Client ID: GEEL003

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Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: October 11, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-3	Project: SCEG01416C
Sample ID: 406126004	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 14-SEP-16 13:45	
Receive Date: 16-SEP-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		3.07	0.067	0.200	mg/L		1	MAR1	09/27/16	1648	1599649	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	SKJ	09/20/16	1434	1599584	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	2.27	3.00	pCi/L			AXM6	10/03/16	1639	1602003	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226	U	ND	0.317	1.00	pCi/L			LXP1	10/05/16	0940	1600164	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	09/16/16	1840	1599583

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			92.2	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: October 11, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-4	Project: SCEG01416C
Sample ID: 406126005	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 14-SEP-16 14:31	
Receive Date: 16-SEP-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		4.05	0.067	0.200	mg/L		1	MAR1	09/27/16	1718	1599649	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	SKJ	09/20/16	1436	1599584	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	2.05	3.00	pCi/L			AXM6	10/03/16	1639	1602003	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		1.10	0.433	1.00	pCi/L			LXP1	10/05/16	0940	1600164	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	09/16/16	1840	1599583

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			82.2	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: October 11, 2016

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd  
  
Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: LF-5  
Sample ID: 406126006  
Matrix: Ground Water  
Collect Date: 14-SEP-16 15:09  
Receive Date: 16-SEP-16  
Collector: Client

Project: SCEG01416C  
Client ID: GEEL003

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in Liquid "As Received"												
Chloride		5.85	0.067	0.200	mg/L		1	MAR1	09/27/16	1748	1599649	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
Metals Analysis-ICP-MS												
200.8/200.2 NPDES Metals "As Received"												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	SKJ	09/20/16	1437	1599584	2
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	ND	1.93	3.00	pCi/L			AXM6	10/03/16	1639	1602003	3
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226	U	ND	0.331	1.00	pCi/L			LXP1	10/05/16	0940	1600164	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	09/16/16	1840	1599583

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			74.6	(15%-125%)

### 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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: October 11, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: DUP	Project: SCEG01416C
Sample ID: 406126007	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 14-SEP-16 15:20	
Receive Date: 16-SEP-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		5.86	0.067	0.200	mg/L		1	MAR1	09/27/16	1818	1599649	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	SKJ	09/20/16	1439	1599584	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	1.59	3.00	pCi/L			AXM6	10/03/16	1639	1602003	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.621	0.339	1.00	pCi/L			LXP1	10/05/16	0940	1600164	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	09/16/16	1840	1599583

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			73	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: October 11, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-6	Project: SCEG01416C
Sample ID: 406126008	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 15-SEP-16 09:09	
Receive Date: 16-SEP-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		7.65	0.067	0.200	mg/L		1	MAR1	09/27/16	1948	1599649	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	SKJ	09/20/16	1441	1599584	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		1.52	1.49	3.00	pCi/L			AXM6	10/03/16	1640	1602003	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.999	0.394	1.00	pCi/L			LXP1	10/05/16	0940	1600164	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	09/16/16	1840	1599583

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			93.5	(15%-125%)

**Notes:**

Column headers are defined as follows:

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



# GEL LABORATORIES LLC

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

## QC Summary

Report Date: October 11, 2016

Page 1 of 3

GEL Engineering, LLC  
2040 Savage Rd  
Charleston, South Carolina

Contact: Robert Gardner

Workorder: 406126

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Ion Chromatography</b>											
Batch	1599649										
QC1203629760	406126008	DUP									
Chloride		7.65		7.65	mg/L	0		(0%-20%)	MAR1	09/27/16	20:18
Fluoride	U	ND	U	ND	mg/L	N/A					
QC1203629759	LCS										
Chloride	5.00			4.58	mg/L		91.6	(90%-110%)		09/27/16	14:49
Fluoride	2.50			2.40	mg/L		95.9	(90%-110%)			
QC1203629758	MB										
Chloride			U	ND	mg/L					09/27/16	14:19
Fluoride			U	ND	mg/L						
QC1203629761	406126008	PS									
Chloride	5.00	7.65		13.0	mg/L		107	(90%-110%)		09/27/16	20:48
Fluoride	2.50	U	ND	2.38	mg/L		94	(90%-110%)			
<b>Metals Analysis - ICPMS</b>											
Batch	1599584										
QC1203629605	406126001	DUP									
Lithium	U	ND	U	ND	ug/L	N/A			SKJ	09/20/16	14:22
QC1203629604	LCS										
Lithium	50.0			50.5	ug/L		101	(80%-120%)		09/20/16	14:12
QC1203629603	MB										
Lithium			U	ND	ug/L					09/20/16	14:10
QC1203629606	406126001	MS									
Lithium	50.0	U	ND	52.1	ug/L		103	(75%-125%)		09/20/16	14:24
QC1203629607	406126001	SDILT									
Lithium	U	ND	U	ND	ug/L	N/A		(0%-10%)		09/20/16	14:26
<b>Rad Gas Flow</b>											
Batch	1602003										
QC1203635577	406126004	DUP									
Radium-228	U	1.10	U	1.26	pCi/L	N/A			N/A AXM6	10/03/16	16:39
QC1203635578	LCS										

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 406126

Page 2 of 3

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gas Flow</b>											
Batch	1602003										
Radium-228	22.0			20.5	pCi/L		93.2	(75%-125%)		10/03/16	16:39
QC1203635576	MB										
Radium-228			U	0.294	pCi/L				AXM6	10/10/16	18:36
<b>Rad Ra-226</b>											
Batch	1600164										
QC1203631222	406126008 DUP										
Radium-226		0.999		0.983	pCi/L	1.61		(0% - 100%)	LXP1	10/05/16	10:10
QC1203631224	LCS										
Radium-226	24.4			21.2	pCi/L		86.7	(75%-125%)		10/05/16	10:10
QC1203631221	MB										
Radium-226			U	0.192	pCi/L					10/05/16	10:10
QC1203631223	406126008 MS										
Radium-226	122	0.999		130	pCi/L		106	(75%-125%)		10/05/16	10:10

**Notes:**

The Qualifiers in this report are defined as follows:

- \*\* Analyte is a Tracer compound
- < Result is less than value reported
- > Result is greater than value reported
- B The target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- E %difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- FA Failed analysis.
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded
- J Value is estimated
- K Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L Analyte present. Reported value may be biased low. Actual value is expected to be higher.
- M M if above MDC and less than LLD
- M REMP Result > MDC/CL and < RDL
- N Metals--The Matrix spike sample recovery is not within specified control limits
- N/A RPD or %Recovery limits do not apply.

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 406126

Page 3 of 3

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
N1											
N1											
ND											
NJ											
Q											
R											
R											
U											
UI											
UJ											
UL											
X											
Y											
Z											
^											
d											
e											
h											

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.



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 30, 2016

REPORT TO:
Mike Moore

Sample ID: **AB23623**

**Cope Well LF-1 RCRA/CCR**

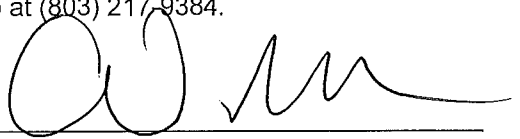
Date & Time Sampled: September 14, 2016 12:04  
 Date & Time Submitted: September 15, 2016 11:05  
 Collected by: C.SANDEL Location Code: COLF1TDS

LF-1

Login Record File: 160915002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	6.67	0.50	mg/L	9/29/16 17:18	LS
Sulfates by IC EPA 300.0	0.69	0.50	mg/L	9/29/16 17:18	LS
Total Dissolved Solid-SM2540C	24	2.0	mg/L	9/20/16 09:19	PRC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 30, 2016

REPORT TO:
Mike Moore

Sample ID: **AB23625**

**Cope Well LF-2 RCRA/CCR**

Date & Time Sampled: September 14, 2016 12:59

Date & Time Submitted: September 15, 2016 11:05

Collected by: C.SANDEL

Location Code: COLF2TDS

LF-2

Login Record File: 160915002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	27.0	0.50	mg/L	9/22/16 05:33	LS
Sulfates by IC EPA 300.0	3.25	0.50	mg/L	9/22/16 05:33	LS
Total Dissolved Solid-SM2540C	56	2.0	mg/L	9/20/16 09:19	PRC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 30, 2016

REPORT TO:
Mike Moore

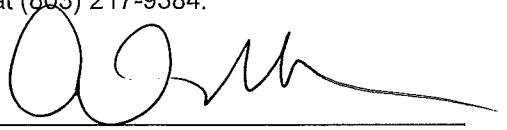
Sample ID: **AB23624**  
**Cope Well Field Blank (RCRA)**

Date & Time Sampled: September 14, 2016 12:45  
 Date & Time Submitted: September 15, 2016 11:05  
 Collected by: C.SANDEL Location Code: COFBTDS

Login Record File: 160915002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	LESS THAN	0.50	mg/L	9/22/16 05:33	LS
Sulfates by IC EPA 300.0	LESS THAN	0.50	mg/L	9/22/16 05:33	LS
Total Dissolved Solid-SM2540C	Less than	2.0	mg/L	9/20/16 09:19	PRC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 30, 2016

REPORT TO:
Mike Moore

Sample ID: **AB23626**

**Cope Well LF-3 RCRA/CCR**

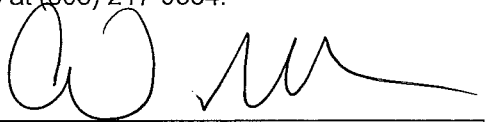
Date & Time Sampled: September 14, 2016 13:45  
 Date & Time Submitted: September 15, 2016 11:05  
 Collected by: C.SANDEL Location Code: COLF3TDS

LF-3

Login Record File: 160915002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	3.18	0.50	mg/L	9/22/16 05:33	LS
Sulfates by IC EPA 300.0	LESS THAN	0.50	mg/L	9/22/16 05:33	LS
Total Dissolved Solid-SM2540C	25	2.0	mg/L	9/20/16 09:19	PRC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 30, 2016

REPORT TO:
Mike Moore

Sample ID: **AB23627**

**Cope Well LF-4 RCRA/CCR**

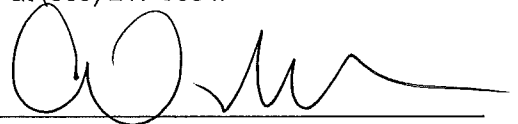
Date & Time Sampled: September 14, 2016 14:31  
 Date & Time Submitted: September 15, 2016 11:05  
 Collected by: C.SANDEL Location Code: COLF4TDS

LF-4

Login Record File: 160915002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	4.32	0.50	mg/L	9/22/16 05:33	LS
Sulfates by IC EPA 300.0	LESS THAN	0.50	mg/L	9/22/16 05:33	LS
Total Dissolved Solid-SM2540C	32	2.0	mg/L	9/20/16 09:19	PRC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 





Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 30, 2016

<b>REPORT TO:</b>
Mike Moore

Sample ID: **AB23628**

**Cope Well LF-5 RCRA/CCR**

Date & Time Sampled: September 14, 2016 15:09

Date & Time Submitted: September 15, 2016 11:05

Collected by: C.SANDEL Location Code: COLF5TDS

LF-5

Login Record File: 160915002

<b>CERTIFIED BY SCDHEC (LAB ID 32006):</b>	<b>Result</b>	<b>Reporting Limit(MRL)</b>	<b>Units</b>	<b>Completed Analysis Date &amp; Time</b>	<b>Chemist</b>
Chlorides by IC EPA 300.0	5.91	0.50	mg/L	9/22/16 05:33	LS
Sulfates by IC EPA 300.0	LESS THAN	0.50	mg/L	9/22/16 05:33	LS
Total Dissolved Solid-SM2540C	20	2.0	mg/L	9/20/16 09:19	PRC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 30, 2016

REPORT TO:
Mike Moore

Sample ID: **AB23629**

**Cope Well Duplicate (RCRA)**

Date & Time Sampled: September 14, 2016 15:20

Date & Time Submitted: September 15, 2016 11:05


Collected by: C.SANDEL

Location Code: CODUPTDS

Login Record File: 160915002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	5.92	0.50	mg/L	9/22/16 05:33	LS
Sulfates by IC EPA 300.0	LESS THAN	0.50	mg/L	9/22/16 05:33	LS
Total Dissolved Solid-SM2540C	17	2.0	mg/L	9/20/16 09:19	PRC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 30, 2016

REPORT TO:
Mike Moore

Sample ID: **AB23630**

**Cope Well LF-6 RCRA/CCR**

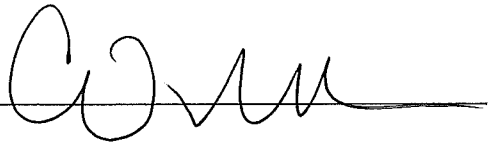
Date & Time Sampled: September 15, 2016 09:09  
 Date & Time Submitted: September 15, 2016 11:05  
 Collected by: C.SANDEL Location Code: COLF6TDS

LF-6

Login Record File: 160915002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	7.70	0.50	mg/L	9/22/16 05:33	LS
Sulfates by IC EPA 300.0	LESS THAN	0.50	mg/L	9/22/16 05:33	LS
Total Dissolved Solid-SM2540C	26.5	2.0	mg/L	9/20/16 09:19	PRC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 20, 2016

REPORT TO:
Mike Moore

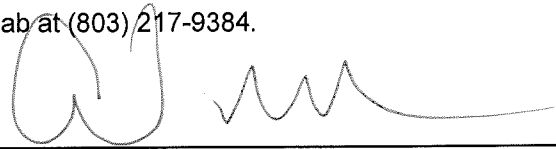
Sample ID: **AB23648**    **Cope Well LF-1 T Metal RCRA/CCR**  
 Date & Time Sampled: September 14, 2016 12:04  
 Date & Time Submitted: September 15, 2016 11:05  
 Collected by: C.SANDEL                      Location Code: COLF1TM

LF-1

Login Record File: 160915002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	MDL	Units	Completed Analysis Date & Time		Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Barium (CWA) 200.7	38.8	10.0	ppb	9/20/16	12:28	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	9/20/16	12:28	CDB
Boron - EPA 200.7	Less than	1000	ppb	9/20/16	12:28	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Calcium EPA 200.7	2350	100	ppb	9/20/16	12:28	CDB
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Cobalt by ICP_MS EPA 200.8	1.3	1.0	ppb	9/20/16	12:07	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	9/20/16	18:35	MC
Molybdenum - EPA 200.8	Less than	5.0	ppb	9/20/16	12:07	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	9/20/16	12:07	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved by: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 20, 2016

REPORT TO:
Mike Moore

Sample ID: **AB23649**    **Cope Well Field Blank Total Metal**  
 Date & Time Sampled: September 14, 2016 12:45  
 Date & Time Submitted: September 15, 2016 11:05  
 Collected by: C.SANDEL                      Location Code: COFBTM

Login Record File: 160915002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	MDL	Units	Completed Analysis Date & Time		Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Barium (CWA) 200.7	Less than	10.0	ppb	9/20/16	12:28	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	9/20/16	12:28	CDB
Boron - EPA 200.7	Less than	1000	ppb	9/20/16	12:28	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Calcium EPA 200.7	Less than	100	ppb	9/20/16	12:28	CDB
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	9/20/16	18:35	MC
Molybdenum - EPA 200.8	Less than	5.0	ppb	9/20/16	12:07	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	9/20/16	12:07	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved by: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 20, 2016

REPORT TO:
Mike Moore

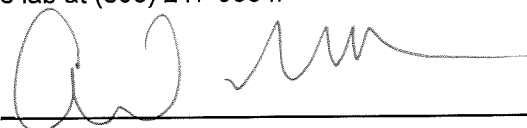
Sample ID: **AB23650 Cope Well LF-2 T Metal RCRA/CCR**  
 Date & Time Sampled: September 14, 2016 12:59  
 Date & Time Submitted: September 15, 2016 11:05  
 Collected by: C.SANDEL Location Code: COLF2TM

LF-2

Login Record File: 160915002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	MDL	Units	Completed Analysis Date & Time		Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Barium (CWA) 200.7	83.4	10.0	ppb	9/20/16	12:28	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	9/20/16	12:28	CDB
Boron - EPA 200.7	Less than	1000	ppb	9/20/16	12:28	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Calcium EPA 200.7	3420	100	ppb	9/20/16	12:28	CDB
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Cobalt by ICP_MS EPA 200.8	2.5	1.0	ppb	9/20/16	12:07	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	9/20/16	18:35	MC
Molybdenum - EPA 200.8	Less than	5.0	ppb	9/20/16	12:07	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	9/20/16	12:07	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved by: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 20, 2016

REPORT TO:
Mike Moore

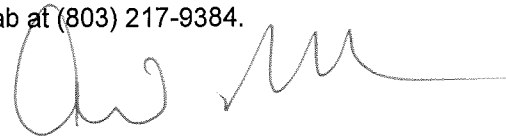
Sample ID: **AB23651 Cope Well LF-3 T Metal RCRA/CCR**  
 Date & Time Sampled: September 14, 2016 13:45  
 Date & Time Submitted: September 15, 2016 11:05  
 Collected by: C.SANDEL Location Code: COLF3TM

LF-3

Login Record File: 160915002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	MDL	Units	Completed Analysis Date & Time		Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Barium (CWA) 200.7	25.3	10.0	ppb	9/20/16	12:28	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	9/20/16	12:28	CDB
Boron - EPA 200.7	Less than	1000	ppb	9/20/16	12:28	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Calcium EPA 200.7	883	100	ppb	9/20/16	12:28	CDB
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	9/20/16	18:40	MC
Molybdenum - EPA 200.8	Less than	5.0	ppb	9/20/16	12:07	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	9/20/16	12:07	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved by: 



**Central Laboratory (P-08)**  
**2102 North Lake Drive**  
**Columbia, SC 29212**  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 20, 2016

<b>REPORT TO:</b>
Mike Moore

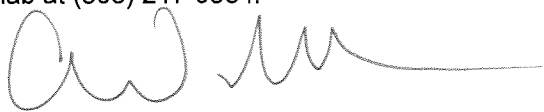
Sample ID: **AB23652 Cope Well LF-4 T Metal RCRA/CCR**  
 Date & Time Sampled: September 14, 2016 14:31  
 Date & Time Submitted: September 15, 2016 11:05  
 Collected by: C.SANDEL Location Code: COLF4TM

LF-4

Login Record File: 160915002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	MDL	Units	Completed Analysis Date & Time		Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Barium (CWA) 200.7	19.8	10.0	ppb	9/20/16	12:28	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	9/20/16	12:28	CDB
Boron - EPA 200.7	Less than	1000	ppb	9/20/16	12:28	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Calcium EPA 200.7	1700	100	ppb	9/20/16	12:28	CDB
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	9/20/16	18:40	MC
Molybdenum - EPA 200.8	Less than	5.0	ppb	9/20/16	12:07	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	9/20/16	12:07	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved by: 





Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 20, 2016

REPORT TO:
Mike Moore

Sample ID: **AB23653 Cope Well LF-5 T Metal RCRA/CCR**  
 Date & Time Sampled: September 14, 2016 15:09  
 Date & Time Submitted: September 15, 2016 11:05  
 Collected by: C.SANDEL Location Code: COLF5TM

LF-5

Login Record File: 160915002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	MDL	Units	Completed Analysis Date & Time		Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Barium (CWA) 200.7	24.4	10.0	ppb	9/20/16	12:28	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	9/20/16	12:28	CDB
Boron - EPA 200.7	Less than	1000	ppb	9/20/16	12:28	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Calcium EPA 200.7	2002	100	ppb	9/20/16	12:28	CDB
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	9/20/16	18:40	MC
Molybdenum - EPA 200.8	Less than	5.0	ppb	9/20/16	12:07	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	9/20/16	12:07	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved by: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 20, 2016

**REPORT TO:**

Mike Moore

Sample ID: **AB23654 Cope Well Duplicate Total Metal**  
 Date & Time Sampled: September 14, 2016 15:20  
 Date & Time Submitted: September 15, 2016 11:05  
 Collected by: C.SANDEL Location Code: CODUPTM

Login Record File: 160915002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	MDL	Units	Completed Analysis Date & Time		Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Barium (CWA) 200.7	23.6	10.0	ppb	9/20/16	12:28	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	9/20/16	12:28	CDB
Boron - EPA 200.7	Less than	1000	ppb	9/20/16	12:28	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Calcium EPA 200.7	1950	100	ppb	9/20/16	12:28	CDB
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	9/20/16	18:40	MC
Molybdenum - EPA 200.8	Less than	5.0	ppb	9/20/16	12:07	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	9/20/16	12:07	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC

If there are any questions concerning this sample, please contact the lab at (803)-217-9384.

Approved by: \_\_\_\_\_



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 20, 2016

REPORT TO:
Mike Moore

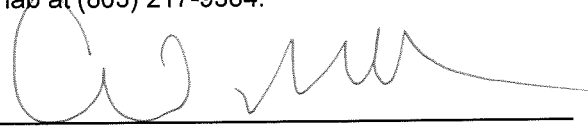
Sample ID: **AB23655 Cope Well LF-6 T Metal RCRA/CCR**  
 Date & Time Sampled: September 15, 2016 09:09  
 Date & Time Submitted: September 15, 2016 11:05  
 Collected by: C.SANDEL Location Code: COLF6TM

LF-6

Login Record File: 160915002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	MDL	Units	Completed Analysis Date & Time		Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Barium (CWA) 200.7	27.7	10.0	ppb	9/20/16	12:28	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	9/20/16	12:28	CDB
Boron - EPA 200.7	Less than	1000	ppb	9/20/16	12:28	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Calcium EPA 200.7	2650	100	ppb	9/20/16	12:28	CDB
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	9/20/16	18:40	MC
Molybdenum - EPA 200.8	Less than	5.0	ppb	9/20/16	12:07	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	9/20/16	12:07	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	9/20/16	12:07	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved by: 

**EPA CCR Rule Compliance Monitoring Wells  
Groundwater Monitoring Data  
South Carolina Electric & Gas: Cope Station Class Three Landfill**

**Cope Station Class Three Landfill**

Monitoring Well ID	Well Data			Initial Gauging		Final Gauging		Final Water Quality Indicator Parameters					
	PVC Pipe Elevation, ft.	Ground Surface Elevation, ft.	Stickup, ft.	Depth to Groundwater, ft.	Groundwater Elevation, ft.	Depth to Groundwater, ft.	Groundwater Elevation, ft.	Temperature °C	pH S.U.	Sp. Cond. µS/cm	Turbidity NTU	ORP mV	DO mg/L
LF-1	176.41	173.74	2.67	8.48	167.93	8.73	167.68	24.5	4.2	70	4.51	273	5.74
LF-2	190.08	187.15	2.93	26.68	163.40	26.85	163.23	25.2	3.9	141	6.14	329	3.83
LF-3	187.19	184.21	2.98	24.61	162.58	25.54	161.65	25.1	4.1	33	4.09	323	3.62
LF-4	184.20	181.37	2.83	24.03	160.17	24.09	160.11	24.8	3.9	48	7.18	350	5.65
LF-5	177.95	175.38	2.57	20.75	157.20	20.77	157.18	24.7	4.0	62	4.29	363	6.47
LF-6	178.57	175.75	2.82	19.88	158.69	19.89	158.68	24.5	4.0	72	5.58	370	6.47
MW-6	187.95			12.82	175.13	12.86	175.09	20.4	3.9	205	4.36	367	6.67
MW-16	182.52			9.06	173.46	9.11	173.41	18.8	4.1	36	4.09	429	6.18

# GEL LABORATORIES LLC

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

## Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC

Client SDG: 410294 GEL Work Order: 410294

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

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- H Analytical holding time was exceeded
- J Value is estimated
- U Analyte was analyzed for but not detected above the Lc
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

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 Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Jake Crook.



Reviewed by \_\_\_\_\_

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: December 9, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-1	Project: SCEG01416C
Sample ID: 410294001	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 08-NOV-16 12:52	
Receive Date: 10-NOV-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Fluoride	J	0.0548	0.033	0.100	mg/L		1	MAR1	11/18/16	0004	1615506	1
Chloride		10.6	0.134	0.400	mg/L		2	MAR1	11/18/16	0844	1615506	2
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	11/15/16	2119	1615197	3
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		2.72	1.20	3.00	pCi/L			AXM6	12/07/16	1113	1619857	4
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		1.31	0.449	1.00	pCi/L			LXP1	12/05/16	0820	1616869	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	11/11/16	0733	1615196

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	EPA 200.8 SC_NPDES	
4	EPA 904.0/SW846 9320 Modified	
5	EPA 903.1 Modified	

Surrogate/Tracer	Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer		GFPC, Ra228, Liquid "As Received"			97.8	(15%-125%)

**Notes:**

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: December 9, 2016

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd

Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: LF-1

Sample ID: 410294001

Project: SCEG01416C

Client ID: GEEL003

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Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: December 9, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-2	Project: SCEG01416C
Sample ID: 410294002	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 08-NOV-16 13:28	
Receive Date: 10-NOV-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in Liquid "As Received"												
Fluoride		0.120	0.033	0.100	mg/L		1	MAR1	11/18/16	0033	1615506	1
Chloride		26.0	0.335	1.00	mg/L		5	MAR1	11/18/16	0916	1615506	2
Metals Analysis-ICP-MS												
200.8/200.2 NPDES Metals "As Received"												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	11/15/16	2129	1615197	3
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228		3.21	2.04	3.00	pCi/L			AXM6	12/07/16	1113	1619857	4
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		1.29	0.380	1.00	pCi/L			LXP1	12/05/16	0820	1616869	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	11/11/16	0733	1615196

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	EPA 200.8 SC_NPDES	
4	EPA 904.0/SW846 9320 Modified	
5	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			97.6	(15%-125%)

**Notes:**



# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: December 9, 2016

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: LF-2

Sample ID: 410294002

Project: SCEG01416C

Client ID: GEEL003

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Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: December 9, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-3	Project: SCEG01416C
Sample ID: 410294003	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 08-NOV-16 14:18	
Receive Date: 10-NOV-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		3.10	0.067	0.200	mg/L		1	MAR1	11/18/16	0102	1615506	1
Fluoride	J	0.0505	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	11/15/16	2132	1615197	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		2.33	1.28	3.00	pCi/L			AXM6	12/07/16	1113	1619857	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.861	0.317	1.00	pCi/L			LXP1	12/05/16	0820	1616869	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	11/11/16	0733	1615196

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			95.8	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: December 9, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: DUP	Project: SCEG01416C
Sample ID: 410294004	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 08-NOV-16 14:40	
Receive Date: 10-NOV-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		3.12	0.067	0.200	mg/L		1	MAR1	11/18/16	0131	1615506	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	11/15/16	2140	1615197	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		2.20	1.40	3.00	pCi/L			AXM6	12/07/16	1113	1619857	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.426	0.272	1.00	pCi/L			LXP1	12/05/16	0820	1616869	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	11/11/16	0733	1615196

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			92.1	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

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## Certificate of Analysis

Report Date: December 9, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: Field Blank	Project: SCEG01416C
Sample ID: 410294005	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 08-NOV-16 15:00	
Receive Date: 10-NOV-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride	J	0.0996	0.067	0.200	mg/L		1	MAR1	11/18/16	0200	1615506	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	11/15/16	2143	1615197	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	1.46	3.00	pCi/L			AXM6	12/07/16	1113	1619857	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		9.43	0.504	1.00	pCi/L			LXP1	12/05/16	0820	1616869	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	11/11/16	0733	1615196

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			101	(15%-125%)

**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: December 9, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-4	Project: SCEG01416C
Sample ID: 410294006	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 08-NOV-16 15:18	
Receive Date: 10-NOV-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		3.53	0.067	0.200	mg/L		1	MAR1	11/18/16	0228	1615506	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	11/15/16	2145	1615197	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	2.14	3.00	pCi/L			AXM6	12/07/16	1113	1619857	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226	U	ND	0.362	1.00	pCi/L			LXP1	12/05/16	0820	1616869	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	11/11/16	0733	1615196

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			93.4	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: December 9, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-5	Project: SCEG01416C
Sample ID: 410294007	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 08-NOV-16 16:01	
Receive Date: 10-NOV-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		6.22	0.067	0.200	mg/L		1	MAR1	11/18/16	0257	1615506	1
Fluoride	J	0.0397	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	11/15/16	2148	1615197	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		2.00	1.52	3.00	pCi/L			AXM6	12/07/16	1115	1619857	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		1.08	0.566	1.00	pCi/L			LXP1	12/05/16	0820	1616869	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	11/11/16	0733	1615196

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			97.8	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: December 9, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-6	Project: SCEG01416C
Sample ID: 410294008	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 08-NOV-16 16:39	
Receive Date: 10-NOV-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		8.06	0.067	0.200	mg/L		1	MAR1	11/18/16	0326	1615506	1
Fluoride	J	0.0496	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	11/15/16	2151	1615197	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	1.66	3.00	pCi/L			AXM6	12/07/16	1116	1619857	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		1.02	0.360	1.00	pCi/L			LXP1	12/05/16	0850	1616869	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	11/11/16	0733	1615196

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			106	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: December 9, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: MW-16	Project: SCEG01416C
Sample ID: 410294009	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 09-NOV-16 09:40	
Receive Date: 10-NOV-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		3.97	0.067	0.200	mg/L		1	MAR1	11/18/16	0453	1615506	1
Fluoride	J	0.0356	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	11/15/16	2153	1615197	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		2.64	1.82	3.00	pCi/L			AXM6	12/07/16	1116	1619857	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.540	0.246	1.00	pCi/L			LXP1	12/05/16	0850	1616869	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	11/11/16	0733	1615196

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			91.4	(15%-125%)

**Notes:**

Column headers are defined as follows:

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



# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: December 9, 2016

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: MW-06	Project: SCEG01416C
Sample ID: 410294010	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 09-NOV-16 10:31	
Receive Date: 10-NOV-16	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Fluoride	J	0.0624	0.033	0.100	mg/L		1	MAR1	11/18/16	0522	1615506	1
Chloride		17.7	0.335	1.00	mg/L		5	MAR1	11/18/16	0944	1615506	2
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	11/15/16	2156	1615197	3
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		4.30	1.39	3.00	pCi/L			AXM6	12/07/16	1116	1619857	4
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		3.40	0.261	1.00	pCi/L			LXP1	12/05/16	0850	1616869	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	11/11/16	0733	1615196

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	EPA 200.8 SC_NPDES	
4	EPA 904.0/SW846 9320 Modified	
5	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			102	(15%-125%)

**Notes:**

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: December 9, 2016

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: MW-06

Project: SCEG01416C

Sample ID: 410294010

Client ID: GEEL003

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Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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Column headers are defined as follows:

DF: Dilution Factor

Lc/LC: Critical Level

DL: Detection Limit

PF: Prep Factor

MDA: Minimum Detectable Activity

RL: Reporting Limit

MDC: Minimum Detectable Concentration

SQL: Sample Quantitation Limit

# GEL LABORATORIES LLC

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

## QC Summary

Report Date: December 9, 2016

Page 1 of 3

GEL Engineering, LLC  
2040 Savage Rd  
Charleston, South Carolina

Contact: Robert Gardner

Workorder: 410294

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Ion Chromatography</b>											
Batch	1615506										
QC1203668461	410294010	DUP									
Chloride		17.7		17.7	mg/L	0.0735		(0%-20%)	MAR1	11/18/16	10:13
Fluoride	J	0.0624	J	0.0647	mg/L	3.62	^	(+/-0.100)		11/18/16	05:51
QC1203668460	LCS										
Chloride	5.00			4.96	mg/L		99.3	(90%-110%)		11/17/16	23:35
Fluoride	2.50			2.61	mg/L		104	(90%-110%)			
QC1203668459	MB										
Chloride			U	ND	mg/L					11/17/16	23:06
Fluoride			U	ND	mg/L						
QC1203668462	410294010	PS									
Chloride	5.00	3.53		8.91	mg/L		107	(90%-110%)		11/18/16	10:42
Fluoride	2.50	J	0.0624	2.76	mg/L		108	(90%-110%)		11/18/16	06:20
<b>Metals Analysis - ICPMS</b>											
Batch	1615197										
QC1203667712	410294001	DUP									
Lithium		U	ND	U	ND	ug/L	N/A		BAJ	11/15/16	21:22
QC1203667711	LCS										
Lithium	50.0			51.9	ug/L		104	(80%-120%)		11/15/16	21:16
QC1203667710	MB										
Lithium			U	ND	ug/L					11/15/16	21:14
QC1203667714	410294001	MS									
Lithium	50.0	U	ND	51.9	ug/L		103	(75%-125%)		11/15/16	21:24
QC1203667716	410294001	SDILT									
Lithium		U	ND	U	ND	ug/L	N/A	(0%-10%)		11/15/16	21:27
<b>Rad Gas Flow</b>											
Batch	1619857										
QC1203679349	410294008	DUP									
Radium-228		U	1.06	U	0.0699	pCi/L	N/A		N/A	AXM6	12/07/16 11:19
QC1203679350	LCS										

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gas Flow</b>											
Batch	1619857										
Radium-228	21.5			22.6	pCi/L		105	(75%-125%)		12/07/16	11:19
QC1203679348									MB		
Radium-228				0.991	pCi/L				AXM6	12/07/16	11:19
<b>Rad Ra-226</b>											
Batch	1616869										
QC1203671654		410294006	DUP								
Radium-226		U	0.126	U	0.184	pCi/L	N/A		N/A	LXP1	12/05/16 09:25
QC1203671656									LCS		
Radium-226	24.4			19.7	pCi/L		80.9	(75%-125%)		12/05/16	09:25
QC1203671653									MB		
Radium-226			U	0.358	pCi/L					12/05/16	08:50
QC1203671655		410294006	MS								
Radium-226	122	U	0.126	92.9	pCi/L		76.1	(75%-125%)		12/05/16	09:25

**Notes:**

The Qualifiers in this report are defined as follows:

- \*\* Analyte is a Tracer compound
- < Result is less than value reported
- > Result is greater than value reported
- B The target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- E %difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- FA Failed analysis.
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded
- J Value is estimated
- K Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L Analyte present. Reported value may be biased low. Actual value is expected to be higher.
- M M if above MDC and less than LLD
- M REMP Result > MDC/CL and < RDL
- N Metals--The Matrix spike sample recovery is not within specified control limits
- N/A RPD or %Recovery limits do not apply.

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## QC Summary

Workorder: 410294

Page 3 of 3

Parname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time	
N1												See case narrative
ND												Analyte concentration is not detected above the detection limit
NJ												Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q												One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R												Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
R												Sample results are rejected
U												Analyte was analyzed for but not detected above the Lc
U												Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI												Gamma Spectroscopy--Uncertain identification
UJ												Gamma Spectroscopy--Uncertain identification
UL												Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X												Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y												Other specific qualifiers were required to properly define the results. Consult case narrative.
Z												Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^												RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d												5-day BOD--The 2:1 depletion requirement was not met for this sample
e												5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes
h												Preparation or preservation holding time was exceeded

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.



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB24481**

**Cope Well LF-1 RCRA/CCR**

Date & Time Sampled: November 08, 2016 12:52  
 Date & Time Submitted: November 10, 2016 14:50  
 Collected by: C.SANDEL Location Code: COLF1TDS

LF-1

Login Record File: 161110001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	11.23	0.50	mg/L	11/17/16 02:36	GWE
Sulfates by IC - 9056A	0.63	0.5	mg/L	11/17/16 02:36	GWE
Total Dissolved Solid-SM2540C	30	2.0	mg/L	11/14/16 09:02	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB24482**

**Cope Well LF-2 RCRA/CCR**

Date & Time Sampled: November 08, 2016 13:28  
 Date & Time Submitted: November 10, 2016 14:50  
 Collected by: C.SANDEL Location Code: COLF2TDS

LF-2

Login Record File: 161110001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	27.06	0.50	mg/L	11/17/16 02:36	GWE
Sulfates by IC - 9056A	2.63	0.5	mg/L	11/17/16 02:36	GWE
Total Dissolved Solid-SM2540C	54	2.0	mg/L	11/14/16 09:02	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB24483**

**Cope Well LF-3 RCRA/CCR**

Date & Time Sampled: November 08, 2016 14:18  
 Date & Time Submitted: November 10, 2016 14:50  
 Collected by: C.SANDEL Location Code: COLF3TDS

LF-3

Login Record File: 161110001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	3.19	0.50	mg/L	11/17/16 02:36	GWE
Sulfates by IC - 9056A	Less than	0.5	mg/L	11/17/16 02:36	GWE
Total Dissolved Solid-SM2540C	21	2.0	mg/L	11/14/16 09:02	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_





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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB24484**

**Cope Well Duplicate (RCRA)**

Date & Time Sampled: November 08, 2016 14:40  
 Date & Time Submitted: November 10, 2016 14:50  
 Collected by: C.SANDEL Location Code: CODUPTDS

Login Record File: 161110001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	3.20	0.50	mg/L	11/17/16 02:36	GWE
Sulfates by IC - 9056A	Less than	0.5	mg/L	11/17/16 02:36	GWE
Total Dissolved Solid-SM2540C	16	2.0	mg/L	11/14/16 09:02	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB24485**

**Cope Well Field Blank (RCRA)**

Date & Time Sampled: November 08, 2016 15:00  
 Date & Time Submitted: November 10, 2016 14:50  
 Collected by: C.SANDEL Location Code: COFBTDS

Login Record File: 161110001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	Less than	0.50	mg/L	11/17/16 02:36	GWE
Sulfates by IC - 9056A	Less than	0.5	mg/L	11/17/16 02:36	GWE
Total Dissolved Solid-SM2540C	Less than	2.0	mg/L	11/14/16 09:02	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB24486**

**Cope Well LF-4 RCRA/CCR**

Date & Time Sampled: November 08, 2016 15:18  
 Date & Time Submitted: November 10, 2016 14:50  
 Collected by: C.SANDEL Location Code: COLF4TDS

LF-4

Login Record File: 161110001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	3.52	0.50	mg/L	11/17/16 02:36	GWE
Sulfates by IC - 9056A	Less than	0.5	mg/L	11/17/16 02:36	GWE
Total Dissolved Solid-SM2540C	17	2.0	mg/L	11/14/16 09:02	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB24487**

**Cope Well LF-5 RCRA/CCR**

Date & Time Sampled: November 08, 2016 16:01  
 Date & Time Submitted: November 10, 2016 14:50  
 Collected by: C.SANDEL Location Code: COLF5TDS

LF-5

Login Record File: 161110001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	6.13	0.50	mg/L	11/17/16 02:36	GWE
Sulfates by IC - 9056A	Less than	0.5	mg/L	11/17/16 02:36	GWE
Total Dissolved Solid-SM2540C	27	2.0	mg/L	11/14/16 09:02	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB24488**

**Cope Well LF-6 RCRA/CCR**

Date & Time Sampled: November 08, 2016 16:39  
 Date & Time Submitted: November 10, 2016 14:50  
 Collected by: C.SANDEL Location Code: COLF6TDS

LF-6

Login Record File: 161110001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	7.87	0.50	mg/L	11/16/16 02:36	GWE
Sulfates by IC - 9056A	Less than	0.5	mg/L	11/16/16 02:36	GWE
Total Dissolved Solid-SM2540C	39	2.0	mg/L	11/14/16 09:02	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB24489**

**Cope GW Well MW-16 TDS (RCRA)**

Date & Time Sampled: November 09, 2016 09:40  
 Date & Time Submitted: November 10, 2016 14:50  
 Collected by: C.SANDEL Location Code: COG16TDS

MW-16

Login Record File: 161110001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	4.11	0.50	mg/L	11/16/16 02:36	GWE
Sulfates by IC - 9056A	1.09	0.5	mg/L	11/16/16 02:36	GWE
Total Dissolved Solid-SM2540C	14	2.0	mg/L	11/14/16 09:02	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB24490**

**Cope GW Well MW-6 TDS - RCRA**

Date & Time Sampled: November 09, 2016 10:31  
 Date & Time Submitted: November 10, 2016 14:50  
 Collected by: C.SANDEL Location Code: COG06TDS

MW-06

Login Record File: 161110001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	18.69	0.50	mg/L	11/16/16 02:36	GWE
Sulfates by IC - 9056A	1.0	0.5	mg/L	11/16/16 02:36	GWE
Total Dissolved Solid-SM2540C	106	2.0	mg/L	11/14/16 09:02	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB24503**

**Cope Well LF-1 T Metal CCR**

Date & Time Sampled: November 08, 2016 12:52  
 Date & Time Submitted: November 10, 2016 14:50  
 Collected by: C.SANDEL Location Code: COLF1TM

LF-1

Login Record File: 161110002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Barium (CWA) 200.7	40.4	10.0	ppb	11/16/16 11:15	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	11/16/16 11:15	PRC
Boron - EPA 200.7	Less than	1000	ppb	11/16/16 11:15	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Calcium EPA 200.7	2632	100	ppb	11/16/16 11:15	PRC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 16:09	MC
Cobalt by ICP_MS EPA 200.8	1.1	1.0	ppb	11/16/16 09:09	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Lithium (CWA) 200.7	Less than	10	ppb	11/16/16 15:23	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	11/16/16 15:40	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	11/16/16 09:09	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC

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Approved By: \_\_\_\_\_





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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB24504**

**Cope Well LF-2 T Metal CCR**

Date & Time Sampled: November 08, 2016 13:28  
 Date & Time Submitted: November 10, 2016 14:50  
 Collected by: C.SANDEL Location Code: COLF2TM

LF-2

Login Record File: 161110002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Barium (CWA) 200.7	80.2	10.0	ppb	11/16/16 11:15	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	11/16/16 11:15	PRC
Boron - EPA 200.7	Less than	1000	ppb	11/16/16 11:15	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Calcium EPA 200.7	3000	100	ppb	11/16/16 11:15	PRC
Chromium by ICP_MS EPA 200.8	1.7	1.0	ppb	11/16/16 16:09	MC
Cobalt by ICP_MS EPA 200.8	3.2	1.0	ppb	11/16/16 09:09	MC
Lead by ICP-MS EPA 200.8	1.1	1.0	ppb	11/16/16 09:09	MC
Lithium (CWA) 200.7	Less than	10	ppb	11/16/16 15:23	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	11/16/16 15:40	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	11/16/16 09:09	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB24505**

**Cope Well LF-3 T Metal CCR**

Date & Time Sampled: November 08, 2016 14:18  
 Date & Time Submitted: November 10, 2016 14:50  
 Collected by: C.SANDEL Location Code: COLF3TM

LF-3

Login Record File: 161110002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Barium (CWA) 200.7	23.8	10.0	ppb	11/16/16 11:15	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	11/16/16 11:15	PRC
Boron - EPA 200.7	Less than	1000	ppb	11/16/16 11:15	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Calcium EPA 200.7	842	100	ppb	11/16/16 11:15	PRC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 16:09	MC
Cobalt by ICP_MS EPA 200.8	1.1	1.0	ppb	11/16/16 09:09	MC
Lead by ICP-MS EPA 200.8	1.2	1.0	ppb	11/16/16 09:09	MC
Lithium (CWA) 200.7	Less than	10	ppb	11/16/16 15:23	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	11/16/16 15:40	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	11/16/16 09:09	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB24506**

**Cope Well Duplicate Total Metal (CCR)**

Date & Time Sampled: November 08, 2016 14:40  
 Date & Time Submitted: November 10, 2016 14:50  
 Collected by: C.SANDEL Location Code: CODUPTM

Login Record File: 161110002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Barium (CWA) 200.7	24.3	10.0	ppb	11/16/16 11:15	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	11/16/16 11:15	PRC
Boron - EPA 200.7	Less than	1000	ppb	11/16/16 11:15	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Calcium EPA 200.7	861	100	ppb	11/16/16 11:15	PRC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 16:09	MC
Cobalt by ICP_MS EPA 200.8	1.2	1.0	ppb	11/16/16 09:09	MC
Lead by ICP-MS EPA 200.8	1.0	1.0	ppb	11/16/16 09:09	MC
Lithium (CWA) 200.7	Less than	10	ppb	11/16/16 15:23	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	11/16/16 15:40	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	11/16/16 09:09	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB24507**

**Cope Well Field Blank Total Metal (CCR)**

Date & Time Sampled: November 08, 2016 15:00  
 Date & Time Submitted: November 10, 2016 14:50  
 Collected by: C.SANDEL Location Code: COFBTM

Login Record File: 161110002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Barium (CWA) 200.7	Less than	10.0	ppb	11/16/16 11:15	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	11/16/16 11:15	PRC
Boron - EPA 200.7	Less than	1000	ppb	11/16/16 11:15	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Calcium EPA 200.7	Less than	100	ppb	11/16/16 11:15	PRC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 16:09	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Lithium (CWA) 200.7	Less than	10	ppb	11/16/16 15:23	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	11/16/16 15:40	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	11/16/16 09:09	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB24508**

**Cope Well LF-4 T Metal CCR**

Date & Time Sampled: November 08, 2016 15:18  
 Date & Time Submitted: November 10, 2016 14:50  
 Collected by: C.SANDEL Location Code: COLF4TM

LF-4

Login Record File: 161110002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Barium (CWA) 200.7	15.4	10.0	ppb	11/16/16 11:15	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	11/16/16 11:15	PRC
Boron - EPA 200.7	Less than	1000	ppb	11/16/16 11:15	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Calcium EPA 200.7	1239	100	ppb	11/16/16 11:15	PRC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 16:09	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Lithium (CWA) 200.7	Less than	10	ppb	11/16/16 15:23	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	11/16/16 15:40	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	11/16/16 09:09	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB24509**

**Cope Well LF-5 T Metal CCR**

Date & Time Sampled: November 08, 2016 16:01  
 Date & Time Submitted: November 10, 2016 14:50  
 Collected by: C.SANDEL Location Code: COLF5TM

LF-5

Login Record File: 161110002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Barium (CWA) 200.7	20.9	10.0	ppb	11/16/16 11:15	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	11/16/16 11:15	PRC
Boron - EPA 200.7	Less than	1000	ppb	11/16/16 11:15	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Calcium EPA 200.7	1760	100	ppb	11/16/16 11:15	PRC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 16:09	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Lithium (CWA) 200.7	Less than	10	ppb	11/16/16 15:23	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	11/16/16 15:40	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	11/16/16 09:09	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



Central Laboratory (P-08)  
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 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB24510**

**Cope Well LF-6 T Metal CCR**

Date & Time Sampled: November 08, 2016 16:39  
 Date & Time Submitted: November 10, 2016 14:50  
 Collected by: C.SANDEL Location Code: COLF6TM

LF-6

Login Record File: 161110002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Barium (CWA) 200.7	27.6	10.0	ppb	11/16/16 11:15	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	11/16/16 11:15	PRC
Boron - EPA 200.7	Less than	1000	ppb	11/16/16 11:15	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Calcium EPA 200.7	2328	100	ppb	11/16/16 11:15	PRC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 16:09	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Lithium (CWA) 200.7	Less than	10	ppb	11/16/16 15:23	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	11/16/16 15:40	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	11/16/16 09:09	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB24511**

**Cope GW Well MW-16 Tota1 Metal (CCR)**

Date & Time Sampled: November 09, 2016 09:40  
 Date & Time Submitted: November 10, 2016 14:50  
 Collected by: C.SANDEL Location Code: COMW16TM

MW-16

Login Record File: 161110002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Barium (CWA) 200.7	12.9	10.0	ppb	11/16/16 11:15	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	11/16/16 11:15	PRC
Boron - EPA 200.7	Less than	1000	ppb	11/16/16 11:15	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Calcium EPA 200.7	2045	100	ppb	11/16/16 11:15	PRC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 16:09	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Lithium (CWA) 200.7	Less than	10	ppb	11/16/16 15:23	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	11/16/16 15:40	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	11/16/16 09:09	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_





Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB24512**

**Cope GW Well MW-6 Total Metal (CCR)**

Date & Time Sampled: November 09, 2016 10:31  
 Date & Time Submitted: November 10, 2016 14:50  
 Collected by: C.SANDEL Location Code: COMW06TM

MW-06

Login Record File: 161110002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Barium (CWA) 200.7	120	10.0	ppb	11/16/16 11:15	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	11/16/16 11:15	PRC
Boron - EPA 200.7	Less than	1000	ppb	11/16/16 11:15	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Calcium EPA 200.7	9462	100	ppb	11/16/16 11:15	PRC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 16:09	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Lithium (CWA) 200.7	Less than	10	ppb	11/16/16 15:23	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	11/16/16 15:40	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	11/16/16 09:09	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	11/16/16 09:09	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_

**EPA CCR Rule Compliance Monitoring Wells  
Groundwater Monitoring Data  
South Carolina Electric & Gas: Cope Station Class Three Landfill**

**Cope Station Class Three Landfill**

Monitoring Well ID	Well Data			1/25-26/2017				Final Water Quality Indicator Parameters					
	PVC Pipe Elevation, ft.	Ground Surface Elevation, ft.	Stickup, ft.	Initial Gauging		Final Gauging		Temperature °C	pH S.U.	Sp. Cond. µS/cm	Turbidity NTU	ORP mV	DO mg/L
				Depth to Groundwater, ft.	Groundwater Elevation, ft.	Depth to Groundwater, ft.	Groundwater Elevation, ft.						
LF-1	176.41	173.74	2.67	5.95	170.46	6.21	170.20	18.5	5.4	49	7.37	149	5.2
LF-2	190.08	187.15	2.93	23.82	166.26	24.09	165.99	22.8	4.4	125	7.59	192	2.23
LF-3	187.19	184.21	2.98	22.78	164.41	23.72	163.47	22.5	4.9	31	7.50	182	3.18
LF-4	184.20	181.37	2.83	22.78	161.42	22.81	161.39	22.6	4.7	41	8.49	215	4.19
LF-5	177.95	175.38	2.57	19.41	158.54	19.45	158.50	23.2	4.6	54	7.65	225	5.33
LF-6	178.57	175.75	2.82	18.76	159.81	18.78	159.79	23.3	4.5	61	7.83	231	4.96
MW-6	187.95	185.20	2.75	10.76	177.19	10.81	177.14	18.1	4.4	186	6.26	184	5.93
MW-16	182.52	179.70	2.82	7.63	174.89	7.69	174.83	17.5	5.0	46	6.08	139	5.79

# GEL LABORATORIES LLC

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

## Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC

Client SDG: 415209 GEL Work Order: 415209

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

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- H Analytical holding time was exceeded
- J Value is estimated
- U Analyte was analyzed for but not detected above the Lc
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

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 Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Jake Crook.

Reviewed by \_\_\_\_\_



# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: February 23, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-1	Project: SCEG01416C
Sample ID: 415209001	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 25-JAN-17 11:22	
Receive Date: 27-JAN-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		7.86	0.067	0.200	mg/L		1	MXL2	01/30/17	1836	1635391	1
Fluoride	J	0.044	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	02/10/17	1939	1634898	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		2.06	2.03	3.00	pCi/L			AXM6	02/09/17	1045	1635133	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226	U	ND	0.398	1.00	pCi/L			LXP1	02/22/17	0835	1635018	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	01/30/17	0938	1634897

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			91.1	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: February 23, 2017

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd  
  
Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: Field Blank      Project: SCEG01416C  
Sample ID: 415209002      Client ID: GEEL003  
Matrix: Water  
Collect Date: 25-JAN-17 12:00  
Receive Date: 27-JAN-17  
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in Liquid "As Received"												
Chloride	J	0.118	0.067	0.200	mg/L		1	MXL2	01/30/17	1957	1635391	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
Metals Analysis-ICP-MS												
200.8/200.2 NPDES Metals "As Received"												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	02/10/17	1950	1634898	2
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228		1.83	1.58	3.00	pCi/L			AXM6	02/09/17	1046	1635133	3
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226	U	ND	0.511	1.00	pCi/L			LXP1	02/22/17	0835	1635018	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	01/30/17	0938	1634897

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			88	(15%-125%)

### Notes:

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: February 23, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-2	Project: SCEG01416C
Sample ID: 415209003	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 25-JAN-17 12:05	
Receive Date: 27-JAN-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Fluoride		0.118	0.033	0.100	mg/L		1	MXL2	01/30/17	2024	1635391	1
Chloride		23.5	0.335	1.00	mg/L		5	MXL2	01/31/17	1142	1635391	2
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	02/10/17	1952	1634898	3
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		4.24	2.19	3.00	pCi/L			AXM6	02/13/17	1113	1635133	4
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		1.90	0.427	1.00	pCi/L			LXP1	02/22/17	0905	1635018	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	01/30/17	0938	1634897

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	EPA 200.8 SC_NPDES	
4	EPA 904.0/SW846 9320 Modified	
5	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			84	(15%-125%)

**Notes:**

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: February 23, 2017

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: LF-2

Sample ID: 415209003

Project: SCEG01416C

Client ID: GEEL003

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Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: February 23, 2017

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd  
  
Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: LF-3  
Sample ID: 415209004  
Matrix: Ground Water  
Collect Date: 25-JAN-17 12:49  
Receive Date: 27-JAN-17  
Collector: Client

Project: SCEG01416C  
Client ID: GEEL003

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in Liquid "As Received"												
Chloride		3.28	0.067	0.200	mg/L		1	MXL2	01/30/17	2051	1635391	1
Fluoride	J	0.0615	0.033	0.100	mg/L		1					
Metals Analysis-ICP-MS												
200.8/200.2 NPDES Metals "As Received"												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	02/10/17	2000	1634898	2
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	ND	1.17	3.00	pCi/L			AXM6	02/09/17	1046	1635133	3
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.791	0.233	1.00	pCi/L			LXP1	02/22/17	0905	1635018	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	01/30/17	0938	1634897

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			91.9	(15%-125%)

### 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



# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: February 23, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: DUP	Project: SCEG01416C
Sample ID: 415209005	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 25-JAN-17 13:10	
Receive Date: 27-JAN-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		3.29	0.067	0.200	mg/L		1	MXL2	01/30/17	2118	1635391	1
Fluoride	J	0.0496	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	02/10/17	2003	1634898	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	1.54	3.00	pCi/L			AXM6	02/09/17	1046	1635133	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.966	0.376	1.00	pCi/L			LXP1	02/22/17	0905	1635018	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	01/30/17	0938	1634897

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			92.9	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: February 23, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-4	Project: SCEG01416C
Sample ID: 415209006	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 25-JAN-17 13:55	
Receive Date: 27-JAN-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		4.21	0.067	0.200	mg/L		1	MXL2	01/30/17	2145	1635391	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	02/10/17	2005	1634898	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	1.59	3.00	pCi/L			AXM6	02/09/17	1046	1635133	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.874	0.523	1.00	pCi/L			LXP1	02/22/17	0905	1635018	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	01/30/17	0938	1634897

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			95.8	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: February 23, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-5	Project: SCEG01416C
Sample ID: 415209007	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 25-JAN-17 14:45	
Receive Date: 27-JAN-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		6.20	0.067	0.200	mg/L		1	MXL2	01/30/17	2305	1635391	1
Fluoride	J	0.0578	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	02/10/17	2008	1634898	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		1.50	1.40	3.00	pCi/L			AXM6	02/09/17	1046	1635133	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226	U	ND	0.296	1.00	pCi/L			LXP1	02/22/17	0905	1635018	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	01/30/17	0938	1634897

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			93.4	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: February 23, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-6	Project: SCEG01416C
Sample ID: 415209008	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 25-JAN-17 15:34	
Receive Date: 27-JAN-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		7.93	0.067	0.200	mg/L		1	MXL2	01/30/17	2332	1635391	1
Fluoride	J	0.0709	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	02/10/17	2011	1634898	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	1.26	3.00	pCi/L			AXM6	02/09/17	1046	1635133	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		1.06	0.424	1.00	pCi/L			LXP1	02/22/17	0905	1635018	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	01/30/17	0938	1634897

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			86.6	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: February 23, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: MW-16	Project: SCEG01416C
Sample ID: 415209009	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 26-JAN-17 09:25	
Receive Date: 27-JAN-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		3.88	0.067	0.200	mg/L		1	MXL2	01/30/17	2359	1635391	1
Fluoride	J	0.0598	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	02/10/17	2013	1634898	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		1.45	1.14	3.00	pCi/L			AXM6	02/09/17	1046	1635133	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.724	0.401	1.00	pCi/L			LXP1	02/22/17	0935	1635018	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	01/30/17	0938	1634897

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			90.7	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: February 23, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: MW-06	Project: SCEG01416C
Sample ID: 415209010	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 26-JAN-17 10:28	
Receive Date: 27-JAN-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Fluoride	J	0.0631	0.033	0.100	mg/L		1	MXL2	01/31/17	0026	1635391	1
Chloride		17.7	0.335	1.00	mg/L		5	MXL2	01/31/17	1209	1635391	2
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	02/10/17	2016	1634898	3
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		4.47	2.64	3.00	pCi/L			AXM6	02/09/17	1430	1635133	4
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		3.50	0.327	1.00	pCi/L			LXP1	02/22/17	0935	1635018	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	01/30/17	0938	1634897

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	EPA 200.8 SC_NPDES	
4	EPA 904.0/SW846 9320 Modified	
5	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			95.8	(15%-125%)

**Notes:**

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: February 23, 2017

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd

Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: MW-06

Sample ID: 415209010

Project: SCEG01416C

Client ID: GEEL003

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Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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

# GEL LABORATORIES LLC

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

## QC Summary

Report Date: February 23, 2017

Page 1 of 4

GEL Engineering, LLC  
2040 Savage Rd  
Charleston, South Carolina

Contact: Robert Gardner

Workorder: 415209

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Ion Chromatography</b>											
Batch	1635391										
QC1203718503	415209001	DUP									
Chloride		7.86		8.03	mg/L	2.18		(0%-20%)	MXL2	01/30/17	19:03
Fluoride	J	0.044	J	0.0603	mg/L	31.3	^	(+/-0.100)			
QC1203718502	LCS										
Chloride	5.00			4.87	mg/L			(90%-110%)		01/30/17	18:09
Fluoride	2.50			2.31	mg/L			(90%-110%)			
QC1203718501	MB										
Chloride			U	ND	mg/L					01/30/17	17:43
Fluoride			U	ND	mg/L						
QC1203718504	415209001	PS									
Chloride	5.00	7.86		13.2	mg/L			(90%-110%)		01/30/17	19:30
Fluoride	2.50	J	0.044	2.77	mg/L			(90%-110%)			
<b>Metals Analysis - ICPMS</b>											
Batch	1634898										
QC1203717086	415209001	DUP									
Lithium		U	ND	U	ND	ug/L	N/A		BAJ	02/10/17	19:42
QC1203717085	LCS										
Lithium	50.0			49.4	ug/L			(80%-120%)		02/10/17	19:36
QC1203717084	MB										
Lithium			U	ND	ug/L					02/10/17	19:34



# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 415209

Page 2 of 4

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Metals Analysis - ICPMS</b>											
Batch	1634898										
QC1203717087	415209001	MS									
Lithium	50.0	U	ND	51.0	ug/L		101	(75%-125%)	BAJ	02/10/17	19:44
QC1203717088	415209001	SDILT									
Lithium		U	ND U	ND	ug/L	N/A		(0%-10%)		02/10/17	19:47
<b>Rad Gas Flow</b>											
Batch	1635133										
QC1203717742	414773020	DUP									
Radium-228		U	0.393	3.34	pCi/L	158*		(0% - 100%)	AXM6	02/09/17	14:30
QC1203717743	LCS										
Radium-228	21.1			23.2	pCi/L		110	(75%-125%)		02/09/17	10:49
QC1203717741	MB										
Radium-228			U	0.738	pCi/L					02/09/17	10:49
<b>Rad Ra-226</b>											
Batch	1635018										
QC1203717408	415209010	DUP									
Radium-226			3.50	2.83	pCi/L	21.2*		(0%-20%)	LXP1	02/22/17	11:30
QC1203717410	LCS										
Radium-226	26.0			21.0	pCi/L		80.9	(75%-125%)		02/22/17	11:30
QC1203717407	MB										
Radium-226			U	-0.0263	pCi/L					02/22/17	11:30
QC1203717409	415209010	MS									
Radium-226	130		3.50	102	pCi/L		75.9	(75%-125%)		02/22/17	11:30

**Notes:**

The Qualifiers in this report are defined as follows:

- \*\* Analyte is a Tracer compound
- < Result is less than value reported

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 415209

Page 3 of 4

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
>											
B											
BD											
E											
E											
FA											
FB											
H											
J											
K											
L											
M											
M											
N											
N/A											
N1											
ND											
NJ											
Q											
R											
R											
U											
U											
UI											
UJ											
UL											
X											
Y											
Z											
^											
d											
e											
h											

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 415209

Page 4 of 4

<u>Parmname</u>	<u>NOM</u>	<u>Sample Qual</u>	<u>QC</u>	<u>Units</u>	<u>RPD%</u>	<u>REC%</u>	<u>Range</u>	<u>Anlst</u>	<u>Date</u>	<u>Time</u>
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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.



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB25483**

**Cope Well LF-1 CCR**

Date & Time Sampled: January 25, 2017 11:22  
 Date & Time Submitted: January 27, 2017 08:54  
 Collected by: SANDEL,C Location Code: COLF1TDS

LF-1

Login Record File: 170127001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	7.92	0.50	mg/L	1/31/17 16:35	EB
pH by SM4500HB	6.09		S.U.	1/27/17 12:00	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	1/31/17 16:35	EB
Total Dissolved Solid-SM2540C	130	2.0	mg/L	1/30/17 10:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



Central Laboratory (P-08)  
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 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB25485**

**Cope Well Field Blank CCR**

Date & Time Sampled: January 25, 2017 12:00  
 Date & Time Submitted: January 27, 2017 08:54  
 Collected by: SANDEL,C Location Code: COFBTDS

Login Record File: 170127001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	Less than	0.50	mg/L	1/31/17 16:35	EB
pH by SM4500HB	6.85		S.U.	1/27/17 12:00	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	1/31/17 16:35	EB
Total Dissolved Solid-SM2540C	8	2.0	mg/L	1/30/17 10:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB25487**

**Cope Well LF-2 CCR**

Date & Time Sampled: January 25, 2017 12:05  
 Date & Time Submitted: January 27, 2017 08:54  
 Collected by: SANDEL,C Location Code: COLF2TDS

LF-2

Login Record File: 170127001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	26.16	0.50	mg/L	1/31/17 16:35	EB
pH by SM4500HB	4.41		S.U.	1/27/17 12:00	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	3.82	0.50	mg/L	1/31/17 16:35	EB
Total Dissolved Solid-SM2540C	52	2.0	mg/L	1/30/17 10:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB25489**

**Cope Well LF-3 CCR**

Date & Time Sampled: January 25, 2017 12:49  
 Date & Time Submitted: January 27, 2017 08:54  
 Collected by: SANDEL,C Location Code: COLF3TDS

LF-3

Login Record File: 170127001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	3.34	0.50	mg/L	1/31/17 16:35	EB
pH by SM4500HB	5.23		S.U.	1/27/17 12:00	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	1/31/17 16:35	EB
Total Dissolved Solid-SM2540C	21	2.0	mg/L	1/30/17 10:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB25491**

**Cope Well Duplicate CCR**

Date & Time Sampled: January 25, 2017 13:10  
 Date & Time Submitted: January 27, 2017 08:54  
 Collected by: SANDEL,C Location Code: CODUPTDS

Login Record File: 170127001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	3.34	0.50	mg/L	1/31/17 16:35	EB
pH by SM4500HB	5.27		S.U.	1/27/17 12:00	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	1/31/17 16:35	EB
Total Dissolved Solid-SM2540C	11	2.0	mg/L	1/30/17 10:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_





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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB25493**

**Cope Well LF-4 CCR**

Date & Time Sampled: January 25, 2017 13:55  
 Date & Time Submitted: January 27, 2017 08:54  
 Collected by: SANDEL,C Location Code: COLF4TDS

LF-4

Login Record File: 170127001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	4.13	0.50	mg/L	1/31/17 16:35	EB
pH by SM4500HB	4.72		S.U.	1/27/17 12:00	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	1/31/17 16:35	EB
Total Dissolved Solid-SM2540C	17	2.0	mg/L	1/30/17 10:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB25495**  
**Cope Well LF-5 CCR**

Date & Time Sampled: January 25, 2017 14:45  
 Date & Time Submitted: January 27, 2017 08:54  
 Collected by: SANDEL,C Location Code: COLF5TDS

LF-5

Login Record File: 170127001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	6.23	0.50	mg/L	1/31/17 16:35	EB
pH by SM4500HB	4.62		S.U.	1/27/17 12:00	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	1/31/17 16:35	EB
Total Dissolved Solid-SM2540C	24	2.0	mg/L	1/30/17 10:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB25497**

**Cope Well LF-6 CCR**

Date & Time Sampled: January 25, 2017 15:34  
 Date & Time Submitted: January 27, 2017 08:54  
 Collected by: SANDEL,C Location Code: COLF6TDS

LF-6

Login Record File: 170127001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	7.83	0.50	mg/L	1/31/17 16:35	EB
pH by SM4500HB	4.66		S.U.	1/27/17 12:00	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	1/31/17 16:35	EB
Total Dissolved Solid-SM2540C	27	2.0	mg/L	1/30/17 10:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB25499**

**Cope Well MW-16 TDS CCR**

Date & Time Sampled: January 26, 2017 09:25  
 Date & Time Submitted: January 27, 2017 08:54  
 Collected by: SANDEL,C Location Code: COMW16TDS

LF-6

Login Record File: 170127001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	3.98	0.50	mg/L	1/31/17 16:35	EB
pH by SM4500HB	4.76		S.U.	1/27/17 12:00	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	1.35	0.50	mg/L	1/31/17 16:35	EB
Total Dissolved Solid-SM2540C	15	2.0	mg/L	1/30/17 10:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB25501**

**Cope Well MW-06 TDS CCR**

Date & Time Sampled: January 26, 2017 10:28  
 Date & Time Submitted: January 27, 2017 08:54  
 Collected by: SANDEL,C Location Code: COMW06TDS

LF-6

Login Record File: 170127001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	19.28	0.50	mg/L	1/31/17 16:35	EB
pH by SM4500HB	4.34		S.U.	1/27/17 12:00	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	1/31/17 16:35	EB
Total Dissolved Solid-SM2540C	84	2.0	mg/L	1/30/17 10:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB25484**

**Cope Well LF-1 T Metal CCR**

Date & Time Sampled: January 25, 2017 11:22  
 Date & Time Submitted: January 27, 2017 08:54  
 Collected by: SANDEL,C Location Code: COLF1TM

LF-1

Login Record File: 170127001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	2/6/17 16:19	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	2/6/17 16:19	MC
Barium by ICP-OES 200.7	34.2	10.0	ppb	1/31/17 15:33	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	1/31/17 15:33	PRC
Boron - EPA 200.7	Less than	1000	ppb	1/31/17 15:33	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	2/6/17 16:19	MC
Calcium EPA 200.7	2002	100	ppb	1/31/17 15:33	PRC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	2/6/17 16:19	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	2/6/17 16:19	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	2/6/17 16:19	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	1/31/17 15:33	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	1/31/17 15:22	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	2/6/17 16:19	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	2/6/17 16:19	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	2/6/17 16:19	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB25486**

**Cope Well Field Blank T Metal CCR**

Date & Time Sampled: January 25, 2017 12:00  
 Date & Time Submitted: January 27, 2017 08:54  
 Collected by: SANDEL,C Location Code: COFBTM

Login Record File: 170127001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:53	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:53	MC
Barium by ICP-OES 200.7	Less than	10.0	ppb	1/31/17 15:33	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	1/31/17 15:33	PRC
Boron - EPA 200.7	Less than	1000	ppb	1/31/17 15:33	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	2/7/17 07:54	MC
Calcium EPA 200.7	Less than	100	ppb	1/31/17 15:33	PRC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:53	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:53	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:53	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	1/31/17 15:33	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	1/31/17 15:22	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	2/7/17 07:54	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	2/7/17 07:53	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:54	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB25488**

**Cope Well LF-2 T Metal CCR**

Date & Time Sampled: January 25, 2017 12:05  
 Date & Time Submitted: January 27, 2017 08:54  
 Collected by: SANDEL,C Location Code: COLF2TM

LF-2

Login Record File: 170127001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Barium by ICP-OES 200.7	60.8	10.0	ppb	1/31/17 15:33	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	1/31/17 15:33	PRC
Boron - EPA 200.7	Less than	1000	ppb	1/31/17 15:33	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Calcium EPA 200.7	2787	100	ppb	1/31/17 15:33	PRC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Cobalt by ICP_MS 200.8	1.3	1.0	ppb	2/7/17 07:55	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	1/31/17 15:33	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	1/31/17 15:22	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	2/7/17 07:55	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_





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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB25490**

**Cope Well LF-3 T Metal CCR**

Date & Time Sampled: January 25, 2017 12:49  
 Date & Time Submitted: January 27, 2017 08:54  
 Collected by: SANDEL,C Location Code: COLF3TM

LF-3

Login Record File: 170127001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Barium by ICP-OES 200.7	24.5	10.0	ppb	1/31/17 15:33	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	1/31/17 15:33	PRC
Boron - EPA 200.7	Less than	1000	ppb	1/31/17 15:33	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Calcium EPA 200.7	761	100	ppb	1/31/17 15:33	PRC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Lithium (CWA) 200.7	2.0	2.0	ppb	1/31/17 15:33	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	1/31/17 15:22	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	2/7/17 07:55	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB25492**

**Cope Well Duplicate T Metal CCR**

Date & Time Sampled: January 25, 2017 13:10  
 Date & Time Submitted: January 27, 2017 08:54  
 Collected by: SANDEL,C Location Code: CODUPTM

Login Record File: 170127001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Barium by ICP-OES 200.7	25.8	10.0	ppb	1/31/17 15:33	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	1/31/17 15:33	PRC
Boron - EPA 200.7	Less than	1000	ppb	1/31/17 15:33	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Calcium EPA 200.7	776	100	ppb	1/31/17 15:33	PRC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Lithium (CWA) 200.7	2.0	2.0	ppb	1/31/17 15:33	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	1/31/17 15:22	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	2/7/17 07:55	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB25494**

**Cope Well LF-4 T Metal CCR**

Date & Time Sampled: January 25, 2017 13:55  
 Date & Time Submitted: January 27, 2017 08:54  
 Collected by: SANDEL,C Location Code: COLF4TM

LF-4

Login Record File: 170127001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Barium by ICP-OES 200.7	18.9	10.0	ppb	1/31/17 15:33	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	1/31/17 15:33	PRC
Boron - EPA 200.7	Less than	1000	ppb	1/31/17 15:33	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Calcium EPA 200.7	1385	100	ppb	1/31/17 15:33	PRC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	1/31/17 15:33	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	1/31/17 15:22	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	2/7/17 07:55	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB25496**

**Cope Well LF-5 T Metal CCR**

Date & Time Sampled: January 25, 2017 14:45  
 Date & Time Submitted: January 27, 2017 08:54  
 Collected by: SANDEL,C Location Code: COLF5TM

LF-5

Login Record File: 170127001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Barium by ICP-OES 200.7	21.9	10.0	ppb	1/31/17 15:33	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	1/31/17 15:33	PRC
Boron - EPA 200.7	Less than	1000	ppb	1/31/17 15:33	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Calcium EPA 200.7	1697	100	ppb	1/31/17 15:33	PRC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	1/31/17 15:33	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	1/31/17 15:22	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	2/7/17 07:55	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB25498**

**Cope Well LF-6 T Metal CCR**

Date & Time Sampled: January 25, 2017 15:34  
 Date & Time Submitted: January 27, 2017 08:54  
 Collected by: SANDEL,C Location Code: COLF6TM

LF-6

Login Record File: 170127001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Barium by ICP-OES 200.7	19.8	10.0	ppb	1/31/17 15:33	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	1/31/17 15:33	PRC
Boron - EPA 200.7	Less than	1000	ppb	1/31/17 15:33	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Calcium EPA 200.7	1712	100	ppb	1/31/17 15:33	PRC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	1/31/17 15:33	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	1/31/17 15:22	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	2/7/17 07:55	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB25500**

**Cope Well MW-16 T Metal CCR**

Date & Time Sampled: January 26, 2017 09:25  
 Date & Time Submitted: January 27, 2017 08:54  
 Collected by: SANDEL,C Location Code: COMW16TM

MW-16

Login Record File: 170127001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Barium by ICP-OES 200.7	13.0	10.0	ppb	1/31/17 15:33	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	1/31/17 15:33	PRC
Boron - EPA 200.7	Less than	1000	ppb	1/31/17 15:33	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Calcium EPA 200.7	1866	100	ppb	1/31/17 15:33	PRC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	1/31/17 15:33	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	1/31/17 15:22	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	2/7/17 07:55	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	2/7/17 07:55	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 07:55	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB25502**

**Cope Well MW-06 T Metal CCR**

Date & Time Sampled: January 26, 2017 10:28  
 Date & Time Submitted: January 27, 2017 08:54  
 Collected by: SANDEL,C Location Code: COMW06TM

MW-06

Login Record File: 170127001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 08:02	MC
Arsenic by ICP_MS 200.8	1.5	1.0	ppb	2/7/17 08:02	MC
Barium by ICP-OES 200.7	119	10.0	ppb	1/31/17 15:33	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	1/31/17 15:33	PRC
Boron - EPA 200.7	Less than	1000	ppb	1/31/17 15:33	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	2/7/17 08:02	MC
Calcium EPA 200.7	8856	100	ppb	1/31/17 15:33	PRC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 08:02	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	2/7/17 08:02	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 08:02	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	1/31/17 15:33	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	1/31/17 15:22	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	2/7/17 08:02	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	2/7/17 08:02	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	2/7/17 08:02	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_

**EPA CCR Rule Compliance Monitoring Wells  
Groundwater Monitoring Data  
South Carolina Electric & Gas: Cope Station Class Three Landfill**

Cope Station Class Three Landfill

Monitoring Well ID	Well Data			3/29-30/2017				Final Water Quality Indicator Parameters					
	PVC Pipe Elevation, ft.	Ground Surface Elevation, ft.	Stickup, ft.	Initial Gauging		Final Gauging		Temperature °C	pH S.U.	Sp. Cond. µS/cm	Turbidity NTU	ORP mV	DO mg/L
				Depth to Groundwater, ft.	Groundwater Elevation, ft.	Depth to Groundwater, ft.	Groundwater Elevation, ft.						
LF-1	176.41	173.74	2.67	7.08	169.33	7.29	169.12	19.7	4.6	58	1.56	316	5.20
LF-2	190.08	187.15	2.93	25.61	164.47	25.75	164.33	23.1	4.1	158	7.05	358	1.06
LF-3	187.19	184.21	2.98	23.99	163.20	24.67	162.52	21.1	4.6	29	0.38	285	2.34
LF-4	184.20	181.37	2.83	23.49	160.71	23.57	160.63	21.9	4.5	37	27.9	297	4.38
LF-5	177.95	175.38	2.57	20.18	157.77	20.20	157.75	22.5	4.5	55	2.29	312	5.96
LF-6	178.57	175.75	2.82	19.18	159.39	19.19	159.38	22.3	4.5	57	1.80	305	5.41
MW-6	187.95	185.20	2.75	12.55	175.40	12.57	175.38	19	4.3	165	1.56	344	6.92
MW-16	182.52	179.70	2.82	8.22	174.30	8.25	174.27	18.3	4.6	36	1.39	313	6.36



# GEL LABORATORIES LLC

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

## Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC

Client SDG: 419613 GEL Work Order: 419613

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

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- H Analytical holding time was exceeded
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

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 Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Jake Crook.

Reviewed by \_\_\_\_\_



# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: April 25, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: MW-16	Project: SCEG01416C
Sample ID: 419613001	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 29-MAR-17 15:00	
Receive Date: 31-MAR-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		3.41	0.067	0.200	mg/L		1	MXL2	03/31/17	1735	1652638	1
Fluoride	J	0.0495	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	04/07/17	2041	1652449	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	1.66	3.00	pCi/L			AXM6	04/14/17	1111	1652760	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.544	0.193	1.00	pCi/L			MXH8	04/21/17	0820	1652782	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	03/31/17	0939	1652448

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			70.6	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: April 25, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: MW-06	Project: SCEG01416C
Sample ID: 419613002	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 29-MAR-17 16:00	
Receive Date: 31-MAR-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Fluoride	J	0.0883	0.033	0.100	mg/L		1	MXL2	03/31/17	1901	1652638	1
Chloride		17.9	0.335	1.00	mg/L		5	MXL2	04/03/17	1822	1652638	2
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	04/07/17	2051	1652449	3
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		2.80	1.68	3.00	pCi/L			AXM6	04/14/17	1114	1652760	4
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		2.24	0.191	1.00	pCi/L			MXH8	04/21/17	0820	1652782	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	03/31/17	0939	1652448

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	EPA 200.8 SC_NPDES	
4	EPA 904.0/SW846 9320 Modified	
5	EPA 903.1 Modified	

Surrogate/Tracer	Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer		GFPC, Ra228, Liquid "As Received"			87.3	(15%-125%)

**Notes:**

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: April 25, 2017

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: MW-06

Project: SCEG01416C

Sample ID: 419613002

Client ID: GEEL003

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Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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Column headers are defined as follows:

DF: Dilution Factor

Lc/LC: Critical Level

DL: Detection Limit

PF: Prep Factor

MDA: Minimum Detectable Activity

RL: Reporting Limit

MDC: Minimum Detectable Concentration

SQL: Sample Quantitation Limit

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: April 25, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-1	Project: SCEG01416C
Sample ID: 419613003	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 29-MAR-17 16:58	
Receive Date: 31-MAR-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Fluoride	J	0.0865	0.033	0.100	mg/L		1	MXL2	03/31/17	1930	1652638	1
Chloride		12.9	0.134	0.400	mg/L		2	MXL2	04/03/17	1851	1652638	2
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	04/07/17	2054	1652449	3
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	1.71	3.00	pCi/L			AXM6	04/14/17	1114	1652760	4
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.404	0.172	1.00	pCi/L			MXH8	04/21/17	0820	1652782	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	03/31/17	0939	1652448

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	EPA 200.8 SC_NPDES	
4	EPA 904.0/SW846 9320 Modified	
5	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			79.9	(15%-125%)

**Notes:**

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: April 25, 2017

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd

Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: LF-1

Sample ID: 419613003

Project: SCEG01416C

Client ID: GEEL003

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Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: April 25, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-2	Project: SCEG01416C
Sample ID: 419613004	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 29-MAR-17 17:57	
Receive Date: 31-MAR-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Fluoride		0.126	0.033	0.100	mg/L		1	MXL2	03/31/17	1959	1652638	1
Chloride		30.4	0.335	1.00	mg/L		5	MXL2	04/03/17	1920	1652638	2
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	04/07/17	2102	1652449	3
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	1.79	3.00	pCi/L			AXM6	04/14/17	1114	1652760	4
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		1.58	0.168	1.00	pCi/L			MXH8	04/21/17	0820	1652782	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	03/31/17	0939	1652448

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	EPA 200.8 SC_NPDES	
4	EPA 904.0/SW846 9320 Modified	
5	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			81.8	(15%-125%)

**Notes:**

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: April 25, 2017

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd

Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope RCRA

---

Client Sample ID:	LF-2	Project:	SCEG01416C
Sample ID:	419613004	Client ID:	GEEL003

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Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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Column headers are defined as follows:

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



# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: April 25, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: Field Blank	Project: SCEG01416C
Sample ID: 419613005	Client ID: GEEL003
Matrix: Water	
Collect Date: 29-MAR-17 18:10	
Receive Date: 31-MAR-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride	J	0.104	0.067	0.200	mg/L		1	MXL2	03/31/17	2028	1652638	1
Fluoride	J	0.0379	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	04/07/17	2112	1652449	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	1.39	3.00	pCi/L			AXM6	04/14/17	1114	1652760	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226	U	ND	0.264	1.00	pCi/L			MXH8	04/21/17	0820	1652782	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	03/31/17	0939	1652448

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			84.9	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: April 25, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-3	Project: SCEG01416C
Sample ID: 419613006	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 30-MAR-17 09:30	
Receive Date: 31-MAR-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		3.89	0.067	0.200	mg/L		1	MXL2	03/31/17	2057	1652638	1
Fluoride	J	0.0754	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	04/07/17	2115	1652449	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	1.76	3.00	pCi/L			AXM6	04/14/17	1114	1652760	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.685	0.340	1.00	pCi/L			MXH8	04/21/17	0820	1652782	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	03/31/17	0939	1652448

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			81.5	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: April 25, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: Dup	Project: SCEG01416C
Sample ID: 419613007	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 30-MAR-17 10:00	
Receive Date: 31-MAR-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		3.57	0.067	0.200	mg/L		1	MXL2	03/31/17	2224	1652638	1
Fluoride	J	0.0552	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	04/07/17	2118	1652449	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	1.66	3.00	pCi/L			AXM6	04/14/17	1114	1652760	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.398	0.209	1.00	pCi/L			MXH8	04/21/17	0820	1652782	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	03/31/17	0939	1652448

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			81.7	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: April 25, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-4	Project: SCEG01416C
Sample ID: 419613008	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 30-MAR-17 11:02	
Receive Date: 31-MAR-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		3.48	0.067	0.200	mg/L		1	MXL2	03/31/17	2253	1652638	1
Fluoride	J	0.0501	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	04/07/17	2120	1652449	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	1.78	3.00	pCi/L			AXM6	04/14/17	1114	1652760	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		1.14	0.146	1.00	pCi/L			MXH8	04/21/17	0820	1652782	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	03/31/17	0939	1652448

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			74.5	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: April 25, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-5	Project: SCEG01416C
Sample ID: 419613009	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 30-MAR-17 12:00	
Receive Date: 31-MAR-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		7.07	0.067	0.200	mg/L		1	MXL2	03/31/17	2322	1652638	1
Fluoride	J	0.0724	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	04/07/17	2123	1652449	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	1.39	3.00	pCi/L			AXM6	04/14/17	1114	1652760	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.481	0.160	1.00	pCi/L			MXH8	04/21/17	0855	1652782	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	03/31/17	0939	1652448

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			79.3	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: April 25, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-6	Project: SCEG01416C
Sample ID: 419613010	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 30-MAR-17 12:58	
Receive Date: 31-MAR-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		8.36	0.067	0.200	mg/L		1	MXL2	03/31/17	2351	1652638	1
Fluoride	J	0.0735	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	04/07/17	2126	1652449	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	2.44	3.00	pCi/L			AXM6	04/14/17	1116	1652760	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.442	0.154	1.00	pCi/L			MXH8	04/21/17	0855	1652782	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	03/31/17	0939	1652448

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			75.4	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## QC Summary

Report Date: April 25, 2017

Page 1 of 4

GEL Engineering, LLC  
2040 Savage Rd  
Charleston, South Carolina

Contact: Robert Gardner

Workorder: 419613

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Ion Chromatography</b>											
Batch	1652638										
QC1203759531	419613001	DUP									
Chloride		3.41		3.40	mg/L	0.523		(0%-20%)	MXL2	03/31/17	18:04
Fluoride	J	0.0495	J	0.0506	mg/L	2.2	^	(+/-0.100)			
QC1203759530	LCS										
Chloride	5.00			5.04	mg/L			101 (90%-110%)		03/31/17	17:06
Fluoride	2.50			2.57	mg/L			103 (90%-110%)			
QC1203759529	MB										
Chloride			U	ND	mg/L					03/31/17	16:37
Fluoride			U	ND	mg/L						
QC1203759532	419613001	PS									
Chloride	5.00	3.41		8.85	mg/L			109 (90%-110%)		03/31/17	18:33
Fluoride	2.50	J	0.0495	2.56	mg/L			100 (90%-110%)			
<b>Metals Analysis - ICPMS</b>											
Batch	1652449										
QC1203759201	419613001	DUP									
Lithium		U	ND	U	ND	ug/L	N/A		BAJ	04/07/17	20:43
QC1203759202	419613004	DUP									
Lithium		U	ND	U	ND	ug/L	N/A			04/07/17	21:04
QC1203759200	LCS										
Lithium	50.0			48.4	ug/L			96.9 (80%-120%)		04/07/17	20:35

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 419613

Page 2 of 4

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Metals Analysis - ICPMS</b>											
Batch	1652449										
QC1203759199		MB									
Lithium			U	ND	ug/L				BAJ	04/07/17	20:38
QC1203759203	419613001	MS									
Lithium	50.0	U	ND	48.6	ug/L		96.6	(75%-125%)		04/07/17	20:46
QC1203759204	419613004	MS									
Lithium	50.0	U	ND	50.5	ug/L		98.7	(75%-125%)		04/07/17	21:07
QC1203759205	419613001	SDILT									
Lithium		U	ND	U	ND	ug/L	N/A	(0%-10%)		04/07/17	20:49
QC1203759206	419613004	SDILT									
Lithium		U	ND	U	ND	ug/L	N/A	(0%-10%)		04/07/17	21:10
<b>Rad Gas Flow</b>											
Batch	1652760										
QC1203759832	419419008	DUP									
Radium-228		U	0.353	U	0.170	pCi/L	N/A		N/AAXM6	04/14/17	11:17
QC1203759833	LCS										
Radium-228	20.6			21.4	pCi/L		104	(75%-125%)		04/14/17	11:17
QC1203759831	MB										
Radium-228				1.46	pCi/L					04/14/17	11:16
<b>Rad Ra-226</b>											
Batch	1652782										
QC1203759884	419419006	DUP									
Radium-226		U	0.124	U	0.184	pCi/L	N/A		N/AMXH8	04/21/17	08:55
QC1203759886	LCS										
Radium-226	26.0			24.0	pCi/L		92.4	(75%-125%)		04/21/17	08:55



# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 419613

Page 3 of 4

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Ra-226</b>											
Batch		1652782									
QC1203759883		MB									
Radium-226			U	0.112	pCi/L				MXH8	04/21/17	08:55
QC1203759885		419419006	MS								
Radium-226	130	U	0.124	105	pCi/L		81	(75%-125%)		04/21/17	08:55

**Notes:**

The Qualifiers in this report are defined as follows:

- \*\* Analyte is a Tracer compound
- < Result is less than value reported
- > Result is greater than value reported
- B The target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- E %difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- FA Failed analysis.
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded
- J Value is estimated
- K Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L Analyte present. Reported value may be biased low. Actual value is expected to be higher.
- M M if above MDC and less than LLD
- M REMP Result > MDC/CL and < RDL
- N Metals--The Matrix spike sample recovery is not within specified control limits
- N/A RPD or %Recovery limits do not apply.
- N1 See case narrative
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- R Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- UI Gamma Spectroscopy--Uncertain identification

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 419613

Page 4 of 4

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
UJ											
UL											
X											
Y											
Z											
^											
d											
e											
h											

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.



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB26507**

**Cope GW Well MW-16 TDS (RCRA)**

Date & Time Sampled: March 29, 2017 15:00  
 Date & Time Submitted: March 30, 2017 15:20  
 Collected by: D.ANDERSON Location Code: COG16TDS

MW-16

Login Record File: 170330004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	3.37	0.50	mg/L	4/7/17 15:27	EB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.67	0.00	S.U.	3/31/17 10:48	CDB
Sulfates by IC - 9056A	1.31	0.5	mg/L	4/7/17 15:27	EB
Total Dissolved Solid-SM2540C	23	2.0	mg/L	3/31/17 15:06	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB26508**

**Cope GW Well MW-6 TDS - RCRA**

Date & Time Sampled: March 29, 2017 16:00  
 Date & Time Submitted: March 30, 2017 15:20  
 Collected by: D.ANDERSON Location Code: COG06TDS

MW-06

Login Record File: 170330004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	18.12	0.50	mg/L	4/7/17 15:27	EB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.34	0.00	S.U.	3/31/17 10:48	CDB
Sulfates by IC - 9056A	Less than	0.5	mg/L	4/7/17 15:27	EB
Total Dissolved Solid-SM2540C	118	2.0	mg/L	3/31/17 15:06	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB26509**

**Cope Well LF-1 CCR**

Date & Time Sampled: March 29, 2017 16:58  
 Date & Time Submitted: March 30, 2017 15:20  
 Collected by: D.ANDERSON Location Code: COLF1TDS

LF-1

Login Record File: 170330004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	12.48	0.50	mg/L	4/7/17 15:27	EB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.84	0.00	S.U.	3/31/17 10:48	CDB
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	4/7/17 15:27	EB
Total Dissolved Solid-SM2540C	41	2.0	mg/L	3/31/17 15:06	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB26510**

**Cope Well LF-2 CCR**

Date & Time Sampled: March 29, 2017 17:57  
 Date & Time Submitted: March 30, 2017 15:20  
 Collected by: D.ANDERSON Location Code: COLF2TDS

LF-2

Login Record File: 170330004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	33.50	0.50	mg/L	4/7/17 15:27	EB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.30	0.00	S.U.	3/31/17 10:48	CDB
Sulfates by IC EPA 300.0	1.86	0.50	mg/L	4/7/17 15:27	EB
Total Dissolved Solid-SM2540C	72	2.0	mg/L	3/31/17 15:06	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB26511**

**Cope Well Field Blank CCR**

Date & Time Sampled: March 29, 2017 18:10  
 Date & Time Submitted: March 30, 2017 15:20  
 Collected by: D.ANDERSON Location Code: COFBTDS

Login Record File: 170330004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	Less than	0.50	mg/L	4/7/17 15:27	EB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	5.59	0.00	S.U.	3/31/17 10:48	CDB
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	4/7/17 15:27	EB
Total Dissolved Solid-SM2540C	4	2.0	mg/L	3/31/17 15:06	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



Central Laboratory (P-08)  
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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB26512**  
**Cope Well LF-3 CCR**

Date & Time Sampled: March 30, 2017 09:30  
 Date & Time Submitted: March 30, 2017 15:20  
 Collected by: D.ANDERSON Location Code: COLF3TDS

LF-3

Login Record File: 170330004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	3.75	0.50	mg/L	4/7/17 15:27	EB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.80	0.00	S.U.	3/31/17 10:48	CDB
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	4/7/17 15:27	EB
Total Dissolved Solid-SM2540C	32	2.0	mg/L	3/31/17 15:06	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_





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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB26513**

**Cope Well Duplicate CCR**

Date & Time Sampled: March 30, 2017 10:00  
 Date & Time Submitted: March 30, 2017 15:20  
 Collected by: D.ANDERSON Location Code: CODUPTDS

Login Record File: 170330004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	3.40	0.50	mg/L	4/7/17 15:27	EB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.85	0.00	S.U.	3/31/17 10:48	CDB
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	4/7/17 15:27	EB
Total Dissolved Solid-SM2540C	30	2.0	mg/L	3/31/17 15:06	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB26514**  
**Cope Well LF-4 CCR**

Date & Time Sampled: March 30, 2017 11:02  
 Date & Time Submitted: March 30, 2017 15:20  
 Collected by: D.ANDERSON Location Code: COLF4TDS

LF-4

Login Record File: 170330004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	3.37	0.50	mg/L	4/7/17 15:27	EB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.67	0.00	S.U.	3/31/17 10:48	CDB
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	4/7/17 15:27	EB
Total Dissolved Solid-SM2540C	21	2.0	mg/L	3/31/17 15:06	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB26515**

**Cope Well LF-5 CCR**

Date & Time Sampled: March 30, 2017 12:00  
 Date & Time Submitted: March 30, 2017 15:20  
 Collected by: D.ANDERSON Location Code: COLF5TDS

LF-5

Login Record File: 170330004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	6.63	0.50	mg/L	4/7/17 15:27	EB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.58	0.00	S.U.	3/31/17 10:48	CDB
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	4/7/17 15:27	EB
Total Dissolved Solid-SM2540C	33	2.0	mg/L	3/31/17 15:06	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB26516**

**Cope Well LF-6 CCR**

Date & Time Sampled: March 30, 2017 12:58  
 Date & Time Submitted: March 30, 2017 15:20  
 Collected by: D.ANDERSON Location Code: COLF6TDS

LF-6

Login Record File: 170330004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	7.74	0.50	mg/L	4/7/17 15:27	EB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.61	0.00	S.U.	3/31/17 10:48	CDB
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	4/7/17 15:27	EB
Total Dissolved Solid-SM2540C	36	2.0	mg/L	3/31/17 15:06	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB26517**

**Cope GW Well MW-16 Tota1 Metal (RCRA)**

Date & Time Sampled: March 29, 2017 15:00  
 Date & Time Submitted: March 30, 2017 15:20  
 Collected by: D.ANDERSON Location Code: COG16TM

MW-16

Login Record File: 170330004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Barium by ICP-OES 200.7	10.5	10.0	ppb	4/4/17 08:29	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	4/4/17 08:29	CDB
Boron - EPA 200.7	Less than	1000	ppb	4/4/17 08:29	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Calcium EPA 200.7	1711	100.0	ppb	4/4/17 08:29	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	4/4/17 08:29	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	4/5/17 14:30	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	4/4/17 13:25	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB26518**

**Cope GW Well MW-6 Total Metal (RCRA)**

Date & Time Sampled: March 29, 2017 16:00  
 Date & Time Submitted: March 30, 2017 15:20  
 Collected by: D.ANDERSON Location Code: COG06TM

MW-06

Login Record File: 170330004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Barium by ICP-OES 200.7	132	10.0	ppb	4/4/17 08:29	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	4/4/17 08:29	CDB
Boron - EPA 200.7	Less than	1000	ppb	4/4/17 08:29	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Calcium EPA 200.7	10020	100.0	ppb	4/4/17 08:29	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	4/4/17 08:29	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	4/5/17 14:30	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	4/4/17 13:25	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB26519**

**Cope Well LF-1 T Metal CCR**

Date & Time Sampled: March 29, 2017 16:58  
 Date & Time Submitted: March 30, 2017 15:20  
 Collected by: D.ANDERSON Location Code: COLF1TM

LF-1

Login Record File: 170330004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Barium by ICP-OES 200.7	43.3	10.0	ppb	4/4/17 08:29	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	4/4/17 08:29	CDB
Boron - EPA 200.7	Less than	1000	ppb	4/4/17 08:29	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Calcium EPA 200.7	2805	100.0	ppb	4/4/17 08:29	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	4/4/17 08:29	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	4/5/17 14:30	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	4/4/17 13:25	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB26520**

**Cope Well LF-2 T Metal CCR**

Date & Time Sampled: March 29, 2017 17:57  
 Date & Time Submitted: March 30, 2017 15:20  
 Collected by: D.ANDERSON Location Code: COLF2TM

LF-2

Login Record File: 170330004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Barium by ICP-OES 200.7	93.6	10.0	ppb	4/4/17 08:29	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	4/4/17 08:29	CDB
Boron - EPA 200.7	Less than	1000	ppb	4/4/17 08:29	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Calcium EPA 200.7	3673	100.0	ppb	4/4/17 08:29	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Cobalt by ICP_MS 200.8	3.0	1.0	ppb	4/4/17 13:25	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	4/4/17 08:29	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	4/5/17 14:30	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	4/4/17 13:25	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_





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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB26521**

**Cope Well Field Blank T Metal CCR**

Date & Time Sampled: March 29, 2017 18:10  
 Date & Time Submitted: March 30, 2017 15:20  
 Collected by: D.ANDERSON Location Code: COFBTM

Login Record File: 170330004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Barium by ICP-OES 200.7	Less than	10.0	ppb	4/4/17 08:29	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	4/4/17 08:29	CDB
Boron - EPA 200.7	Less than	1000	ppb	4/4/17 08:29	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Calcium EPA 200.7	Less than	100.0	ppb	4/4/17 08:29	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	4/4/17 08:29	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	4/5/17 14:30	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	4/4/17 13:25	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB26522**

**Cope Well LF-3 T Metal CCR**

Date & Time Sampled: March 30, 2017 09:30  
 Date & Time Submitted: March 30, 2017 15:20  
 Collected by: D.ANDERSON Location Code: COLF3TM

LF-3

Login Record File: 170330004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Barium by ICP-OES 200.7	33.4	10.0	ppb	4/4/17 08:29	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	4/4/17 08:29	CDB
Boron - EPA 200.7	Less than	1000	ppb	4/4/17 08:29	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Calcium EPA 200.7	1005	100.0	ppb	4/4/17 08:29	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Cobalt by ICP_MS 200.8	1.35	1.0	ppb	4/4/17 13:25	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	4/4/17 08:29	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	4/5/17 14:30	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	4/4/17 13:25	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB26523**

**Cope Well Duplicate T Metal CCR**

Date & Time Sampled: March 30, 2017 10:00  
 Date & Time Submitted: March 30, 2017 15:20  
 Collected by: D.ANDERSON Location Code: CODUPTM

Login Record File: 170330004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Barium by ICP-OES 200.7	31.4	10.0	ppb	4/4/17 08:29	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	4/4/17 08:29	CDB
Boron - EPA 200.7	Less than	1000	ppb	4/4/17 08:29	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Calcium EPA 200.7	940	100.0	ppb	4/4/17 08:29	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Cobalt by ICP_MS 200.8	1.26	1.0	ppb	4/4/17 13:25	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	4/4/17 08:29	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	4/5/17 14:30	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	4/4/17 13:25	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB26524**

**Cope Well LF-4 T Metal CCR**

Date & Time Sampled: March 30, 2017 11:02  
 Date & Time Submitted: March 30, 2017 15:20  
 Collected by: D.ANDERSON Location Code: COLF4TM

LF-4

Login Record File: 170330004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Barium by ICP-OES 200.7	13.9	10.0	ppb	4/4/17 08:29	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	4/4/17 08:29	CDB
Boron - EPA 200.7	Less than	1000	ppb	4/4/17 08:29	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Calcium EPA 200.7	1147	100.0	ppb	4/4/17 08:29	CDB
Chromium by ICP_MS 200.8	1.0	1.0	ppb	4/4/17 13:25	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	4/4/17 08:29	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	4/5/17 14:30	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	4/4/17 13:25	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



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January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB26525**

**Cope Well LF-5 T Metal CCR**

Date & Time Sampled: March 30, 2017 12:00  
 Date & Time Submitted: March 30, 2017 15:20  
 Collected by: D.ANDERSON Location Code: COLF5TM

LF-5

Login Record File: 170330004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Barium by ICP-OES 200.7	25.0	10.0	ppb	4/4/17 08:29	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	4/4/17 08:29	CDB
Boron - EPA 200.7	Less than	1000	ppb	4/4/17 08:29	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Calcium EPA 200.7	2081	100.0	ppb	4/4/17 08:29	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	4/4/17 08:29	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	4/5/17 14:30	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	4/4/17 13:25	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

January 25, 2018

REPORT TO:
Mike Moore C221

Sample ID: **AB26526**

**Cope Well LF-6 T Metal CCR**

Date & Time Sampled: March 30, 2017 12:58  
 Date & Time Submitted: March 30, 2017 15:20  
 Collected by: D.ANDERSON Location Code: COLF6TM

LF-6

Login Record File: 170330004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Barium by ICP-OES 200.7	22.9	10.0	ppb	4/4/17 08:29	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	4/4/17 08:29	CDB
Boron - EPA 200.7	Less than	1000	ppb	4/4/17 08:29	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Calcium EPA 200.7	2433	100.0	ppb	4/4/17 08:29	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	4/4/17 08:29	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	4/5/17 14:30	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	4/4/17 13:25	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	4/4/17 13:25	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	4/4/17 13:25	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_

**EPA CCR Rule Compliance Monitoring Wells  
Groundwater Monitoring Data  
South Carolina Electric & Gas: Cope Station Class Three Landfill**

Cope Station Class Three Landfill

Monitoring Well ID	Well Data			5/15-16/2017				Final Water Quality Indicator Parameters					
	PVC Pipe Elevation, ft.	Ground Surface Elevation, ft.	Stickup, ft.	Initial Gauging		Final Gauging		Temperature °C	pH S.U.	Sp. Cond. µS/cm	Turbidity NTU	ORP mV	DO mg/L
				Depth to Groundwater, ft.	Groundwater Elevation, ft.	Depth to Groundwater, ft.	Groundwater Elevation, ft.						
LF-1	176.41	173.74	2.67	6.84	169.57	7.03	169.38	22.3	4.4	81	6.17	82.0	7.31
LF-2	190.08	187.15	2.93	24.88	165.20	25.06	165.02	22.6	4.0	164	6.05	72.4	6.01
LF-3	187.19	184.21	2.98	23.25	163.94	24.20	162.99	23.1	4.2	33	5.72	64.8	3.69
LF-4	184.20	181.37	2.83	23.18	161.02	23.25	160.95	22.6	4.1	44	7.46	70.8	4.63
LF-5	177.95	175.38	2.57	20.08	157.87	20.11	157.84	22.7	4.1	61	5.83	79.8	5.64
LF-6	178.57	175.75	2.82	19.01	159.56	19.05	159.52	22.7	4.1	61	5.09	60.1	5.68
MW-6	187.95	185.20	2.75	12.93	175.02	12.96	174.99	17.7	3.8	184	6.42	69.0	6.45
MW-16	182.52	179.70	2.82	8.63	173.89	8.70	173.82	17.5	4.2	42	5.48	57.8	6.20

## GEL LABORATORIES LLC

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

### Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC

Client SDG: 423295 GEL Work Order: 423295

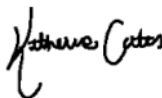
**The Qualifiers in this report are defined as follows:**

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- H Analytical holding time was exceeded
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

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 Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Jake Crook.



Reviewed by \_\_\_\_\_



# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: June 5, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-1	Project: SCEG01416C
Sample ID: 423295001	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 15-MAY-17 13:03	
Receive Date: 16-MAY-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Fluoride	J	0.0364	0.033	0.100	mg/L		1	MAR1	05/26/17	2247	1665858	1
Chloride		11.3	0.134	0.400	mg/L		2	MAR1	05/31/17	0101	1665858	2
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	05/20/17	0759	1665785	3
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		1.28	0.946	3.00	pCi/L			BXF1	06/02/17	1133	1665894	4
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.628	0.257	1.00	pCi/L			MXH8	06/02/17	1025	1665903	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	05/17/17	0652	1665784

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	EPA 200.8 SC_NPDES	
4	EPA 904.0/SW846 9320 Modified	
5	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			99.9	(15%-125%)

**Notes:**

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: June 5, 2017

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd

Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope RCRA

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Client Sample ID:	LF-1	Project:	SCEG01416C
Sample ID:	423295001	Client ID:	GEEL003

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Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: June 5, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: Field Blank	Project: SCEG01416C
Sample ID: 423295002	Client ID: GEEL003
Matrix: Water	
Collect Date: 15-MAY-17 13:40	
Receive Date: 16-MAY-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride	U	ND	0.067	0.200	mg/L		1	MAR1	05/27/17	0013	1665858	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	05/20/17	0811	1665785	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	1.36	3.00	pCi/L			BXF1	06/02/17	1133	1665894	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226	U	ND	0.199	1.00	pCi/L			MXH8	06/02/17	1025	1665903	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	05/17/17	0652	1665784

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			90.1	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: June 5, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-2	Project: SCEG01416C
Sample ID: 423295003	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 15-MAY-17 13:45	
Receive Date: 16-MAY-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Fluoride		0.121	0.033	0.100	mg/L		1	MAR1	05/27/17	0042	1665858	1
Chloride		32.0	0.335	1.00	mg/L		5	MAR1	05/31/17	0228	1665858	2
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	05/20/17	0813	1665785	3
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		4.01	1.22	3.00	pCi/L			BXF1	06/02/17	1133	1665894	4
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		1.73	0.215	1.00	pCi/L			MXH8	06/02/17	1025	1665903	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	05/17/17	0652	1665784

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	EPA 200.8 SC_NPDES	
4	EPA 904.0/SW846 9320 Modified	
5	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			95.4	(15%-125%)

**Notes:**

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: June 5, 2017

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner  
Project: Cope RCRA

Client Sample ID: LF-2

Sample ID: 423295003

Project: SCEG01416C

Client ID: GEEL003

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Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: June 5, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-3	Project: SCEG01416C
Sample ID: 423295004	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 15-MAY-17 14:34	
Receive Date: 16-MAY-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		3.73	0.067	0.200	mg/L		1	MAR1	05/27/17	0111	1665858	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	05/20/17	0815	1665785	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		1.31	1.29	3.00	pCi/L			BXF1	06/02/17	1133	1665894	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.566	0.167	1.00	pCi/L			MXH8	06/02/17	1025	1665903	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	05/17/17	0652	1665784

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			99.2	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: June 5, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-4	Project: SCEG01416C
Sample ID: 423295005	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 15-MAY-17 15:17	
Receive Date: 16-MAY-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		3.81	0.067	0.200	mg/L		1	MAR1	05/27/17	0140	1665858	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	05/20/17	0817	1665785	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	1.54	3.00	pCi/L			BXF1	06/02/17	1133	1665894	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.476	0.350	1.00	pCi/L			MXH8	06/02/17	1025	1665903	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	05/17/17	0652	1665784

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			89.2	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: June 5, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-5	Project: SCEG01416C
Sample ID: 423295006	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 15-MAY-17 15:56	
Receive Date: 16-MAY-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		7.47	0.067	0.200	mg/L		1	MAR1	05/27/17	0209	1665858	1
Fluoride	J	0.0369	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	05/20/17	0819	1665785	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	1.50	3.00	pCi/L			BXF1	06/02/17	1133	1665894	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		1.33	0.310	1.00	pCi/L			MXH8	06/02/17	1025	1665903	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	05/17/17	0652	1665784

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			99.5	(15%-125%)

**Notes:**

Column headers are defined as follows:

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



# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: June 5, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: DUP	Project: SCEG01416C
Sample ID: 423295007	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 15-MAY-17 16:10	
Receive Date: 16-MAY-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		7.49	0.067	0.200	mg/L		1	MAR1	05/27/17	0335	1665858	1
Fluoride	J	0.0346	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	05/20/17	0821	1665785	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		1.27	1.13	3.00	pCi/L			BXF1	06/02/17	1133	1665894	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.317	0.151	1.00	pCi/L			MXH8	06/02/17	1025	1665903	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	05/17/17	0652	1665784

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			96.1	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: June 5, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: LF-6	Project: SCEG01416C
Sample ID: 423295008	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 15-MAY-17 16:45	
Receive Date: 16-MAY-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		8.41	0.067	0.200	mg/L		1	MAR1	05/27/17	0404	1665858	1
Fluoride	J	0.0375	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	05/20/17	0822	1665785	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	1.39	3.00	pCi/L			BXF1	06/02/17	1133	1665894	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		1.09	0.263	1.00	pCi/L			MXH8	06/02/17	1025	1665903	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	05/17/17	0652	1665784

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			93.1	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: June 5, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: MW-16	Project: SCEG01416C
Sample ID: 423295009	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 16-MAY-17 07:42	
Receive Date: 16-MAY-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		3.50	0.067	0.200	mg/L		1	MAR1	05/27/17	0433	1665858	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	05/20/17	0824	1665785	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	1.25	3.00	pCi/L			BXF1	06/02/17	1135	1665894	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.848	0.171	1.00	pCi/L			MXH8	06/02/17	1055	1665903	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	05/17/17	0652	1665784

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			102	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: June 5, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope RCRA

Client Sample ID: MW-06	Project: SCEG01416C
Sample ID: 423295010	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 16-MAY-17 08:38	
Receive Date: 16-MAY-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Fluoride	J	0.0621	0.033	0.100	mg/L		1	MAR1	05/27/17	0502	1665858	1
Chloride		18.5	0.335	1.00	mg/L		5	MAR1	05/31/17	0257	1665858	2
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	05/20/17	0826	1665785	3
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		4.88	1.52	3.00	pCi/L			BXF1	06/02/17	1135	1665894	4
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		2.78	0.210	1.00	pCi/L			MXH8	06/02/17	1055	1665903	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	05/17/17	0652	1665784

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	EPA 200.8 SC_NPDES	
4	EPA 904.0/SW846 9320 Modified	
5	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			107	(15%-125%)

**Notes:**

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: June 5, 2017

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd

Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope RCRA

---

Client Sample ID:	MW-06	Project:	SCEG01416C
Sample ID:	423295010	Client ID:	GEEL003

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Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## QC Summary

Report Date: June 5, 2017

Page 1 of 4

GEL Engineering, LLC  
2040 Savage Rd  
Charleston, South Carolina

Contact: Robert Gardner

Workorder: 423295

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Ion Chromatography</b>											
Batch	1665858										
QC1203791318	423295001	DUP									
Chloride		11.3		11.3	mg/L	0.101		(0%-20%)	MAR1	05/31/17	01:30
Fluoride	J	0.0364	J	0.0337	mg/L	7.7 ^		(+/-0.100)		05/26/17	23:15
QC1203791317	LCS										
Chloride	5.00			5.03	mg/L		101	(90%-110%)		05/26/17	22:18
Fluoride	2.50			2.56	mg/L		102	(90%-110%)			
QC1203791316	MB										
Chloride			U	ND	mg/L					05/26/17	21:49
Fluoride			U	ND	mg/L						
QC1203791319	423295001	PS									
Chloride	5.00	5.64		11.4	mg/L		115 *	(90%-110%)		05/31/17	01:59
Fluoride	2.50	J	0.0364	2.64	mg/L		104	(90%-110%)		05/26/17	23:44
<b>Metals Analysis - ICPMS</b>											
Batch	1665785										
QC1203791107	423295001	DUP									
Lithium		U	ND	U	ND	ug/L	N/A		BAJ	05/20/17	08:00
QC1203791106	LCS										
Lithium	50.0			47.7	ug/L		95.3	(80%-120%)		05/20/17	07:57
QC1203791105	MB										
Lithium			U	ND	ug/L					05/20/17	07:55

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 423295

Page 2 of 4

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Metals Analysis - ICPMS</b>											
Batch	1665785										
QC1203791108	423295001	MS									
Lithium	50.0	U	ND	52.1	ug/L		103	(75%-125%)	BAJ	05/20/17	08:02
QC1203791109	423295001	SDILT									
Lithium		U	ND	ND	ug/L	N/A		(0%-10%)		05/20/17	08:04
<b>Rad Gas Flow</b>											
Batch	1665894										
QC1203791415	423295008	DUP									
Radium-228		U	0.853	U	-0.211	pCi/L	N/A		N/A	BXF1	06/02/17 11:35
QC1203791416	LCS										
Radium-228	20.3			20.6	pCi/L		101	(75%-125%)		06/02/17	11:35
QC1203791414	MB										
Radium-228			U	0.584	pCi/L					06/02/17	11:35
<b>Rad Ra-226</b>											
Batch	1665903										
QC1203791451	423295006	DUP									
Radium-226			1.33	0.865	pCi/L	42.7*		(0%-20%)	MXH8	06/02/17	10:55
QC1203791453	LCS										
Radium-226	26.0			21.2	pCi/L		81.5	(75%-125%)		06/02/17	10:55
QC1203791450	MB										
Radium-226			U	0.145	pCi/L					06/02/17	10:55
QC1203791452	423295006	MS									
Radium-226	130		1.33	108	pCi/L		82.3	(75%-125%)		06/02/17	10:55

**Notes:**

The Qualifiers in this report are defined as follows:

- \*\* Analyte is a Tracer compound
- < Result is less than value reported

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 423295

Page 3 of 4

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
>											
B											
BD											
E											
E											
FA											
FB											
H											
J											
K											
L											
M											
M											
N											
N/A											
N1											
ND											
NJ											
Q											
R											
R											
U											
UI											
UJ											
UL											
X											
Y											
Z											
^											
d											
e											
h											





Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 18, 2017

REPORT TO:
Mike Moore

Sample ID: **AB27053**

**Cope Well LF-1 CCR**


Date & Time Sampled: May 15, 2017 13:03  
 Date & Time Submitted: May 16, 2017 16:08  
 Collected by: C.SANDEL Location Code: COLF1TDS

LF-1

Login Record File: 170517001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	10.87	0.50	mg/L	5/18/17 12:00	BB
pH by SM4500HB(2011)	4.79	0.00	S.U.	5/17/17 09:30	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	5/18/17 12:00	BB
Total Dissolved Solid-SM2540C	45	2.0	mg/L	5/18/17 14:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 18, 2017

REPORT TO:
Mike Moore

Sample ID: **AB27054**


**Cope Well Field Blank CCR**

Date & Time Sampled: May 15, 2017 13:40  
 Date & Time Submitted: May 16, 2017 16:08  
 Collected by: C.SANDEL Location Code: COFBTDS

Login Record File: 170517001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	Less than	0.50	mg/L	5/18/17 12:00	BB
pH by SM4500HB(2011)	5.51	0.00	S.U.	5/17/17 09:30	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	5/18/17 12:00	BB
Total Dissolved Solid-SM2540C	6	2.0	mg/L	5/18/17 14:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 18, 2017

REPORT TO:
Mike Moore

Sample ID: **AB27055**

**Cope Well LF-2 CCR**

Date & Time Sampled: May 15, 2017 13:45  
 Date & Time Submitted: May 16, 2017 16:08  
 Collected by: C.SANDEL Location Code: COLF2TDS

LF-2

Login Record File: 170517001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	28.9	0.50	mg/L	5/18/17 12:00	BB
pH by SM4500HB(2011)	4.38	0.00	S.U.	5/17/17 09:30	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	1.73	0.50	mg/L	5/18/17 12:00	BB
Total Dissolved Solid-SM2540C	70	2.0	mg/L	5/18/17 14:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 18, 2017

REPORT TO:
Mike Moore

Sample ID: **AB27056**

**Cope Well LF-3 CCR**

Date & Time Sampled: May 15, 2017 14:34  
 Date & Time Submitted: May 16, 2017 16:08  
 Collected by: C.SANDEL Location Code: COLF3TDS

LF-3

Login Record File: 170517001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	3.26	0.50	mg/L	5/18/17 12:00	BB
pH by SM4500HB(2011)	4.93	0.00	S.U.	5/17/17 09:30	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	5/18/17 12:00	BB
Total Dissolved Solid-SM2540C	25	2.0	mg/L	5/18/17 14:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 18, 2017

REPORT TO:
Mike Moore

Sample ID: **AB27057**

**Cope Well LF-4 CCR**

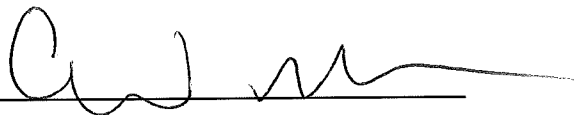
Date & Time Sampled: May 15, 2017 15:17  
 Date & Time Submitted: May 16, 2017 16:08  
 Collected by: C.SANDEL Location Code: COLF4TDS

LF-4

Login Record File: 170517001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	3.37	0.50	mg/L	5/18/17 12:00	BB
pH by SM4500HB(2011)	4.79	0.00	S.U.	5/17/17 09:30	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	5/18/17 12:00	BB
Total Dissolved Solid-SM2540C	28	2.0	mg/L	5/18/17 14:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 18, 2017

REPORT TO:
Mike Moore

Sample ID: **AB27058**

**Cope Well LF-5 CCR**


Date & Time Sampled: May 15, 2017 15:56  
 Date & Time Submitted: May 16, 2017 16:08  
 Collected by: C.SANDEL Location Code: COLF5TDS

LF-5

Login Record File: 170517001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	6.39	0.50	mg/L	5/18/17 12:00	BB
pH by SM4500HB(2011)	4.72	0.00	S.U.	5/17/17 09:30	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	5/18/17 12:00	BB
Total Dissolved Solid-SM2540C	32	2.0	mg/L	5/18/17 14:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 18, 2017

REPORT TO:
Mike Moore

Sample ID: **AB27059**

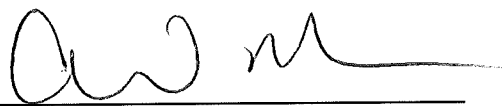
**Cope Well Duplicate CCR**

Date & Time Sampled: May 15, 2017 16:10  
 Date & Time Submitted: May 16, 2017 16:08  
 Collected by: C.SANDEL Location Code: CODUPTDS

Login Record File: 170517001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	6.40	0.50	mg/L	5/18/17 12:00	BB
pH by SM4500HB(2011)	4.62	0.00	S.U.	5/17/17 09:30	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	5/18/17 12:00	BB
Total Dissolved Solid-SM2540C	34	2.0	mg/L	5/18/17 14:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 18, 2017

REPORT TO:
Mike Moore

Sample ID: **AB27060**

**Cope Well LF-6 CCR**

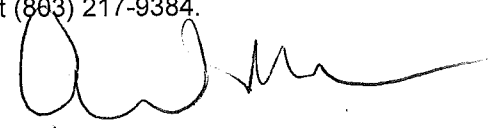
Date & Time Sampled: May 15, 2017 16:45  
 Date & Time Submitted: May 16, 2017 16:08  
 Collected by: C.SANDEL Location Code: COLF6TDS

LF-6

Login Record File: 170517001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	7.13	0.50	mg/L	5/18/17 12:00	BB
pH by SM4500HB(2011)	4.79	0.00	S.U.	5/17/17 09:30	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	5/18/17 12:00	BB
Total Dissolved Solid-SM2540C	36	2.0	mg/L	5/18/17 14:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 





Central Laboratory (P-08)  
2102 North Lake Drive  
Columbia, SC 29212  
Tel: (803)217-9384  
Fax: (803) 217-9911

May 18, 2017

REPORT TO:
Mike Moore

Sample ID: **AB27061**

**Cope GW Well MW-16 TDS (RCRA)**

Date & Time Sampled: May 16, 2017 07:42  
Date & Time Submitted: May 16, 2017 16:08  
Collected by: C.SANDEL Location Code: COG16TDS

MW-16

Login Record File: 170517001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	3.03	0.50	mg/L	5/18/17 12:00	BB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.86	0.00	S.U.	5/17/17 09:30	BF
Sulfates by IC EPA 300.0	1.16	0.50	mg/L	5/18/17 12:00	BB
Total Dissolved Solid-SM2540C	24	2.0	mg/L	5/18/17 14:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 18, 2017

REPORT TO:
Mike Moore

Sample ID: **AB27062**

**Cope GW Well MW-6 TDS - RCRA**

Date & Time Sampled: May 16, 2017 08:38  
 Date & Time Submitted: May 16, 2017 16:08  
 Collected by: C.SANDEL Location Code: COG06TDS

MW-06

Login Record File: 170517001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	17.96	0.50	mg/L	5/18/17 12:00	BB
pH by SM4500HB(2011)	4.37	0.00	S.U.	5/17/17 09:30	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	5/18/17 12:00	BB
Total Dissolved Solid-SM2540C	103	2.0	mg/L	5/18/17 14:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 22, 2017

<b>REPORT TO:</b>
Mike Moore

Sample ID: **AB27063**

**Cope Well LF-1 T Metal CCR**

Date & Time Sampled: May 15, 2017 13:03  
 Date & Time Submitted: May 16, 2017 16:08  
 Collected by: C.SANDEL Location Code: COLF1TM

LF-1

Login Record File: 170517001

<b>CERTIFIED BY SCDHEC (LAB ID 32006):</b>	<b>Result</b>	<b>Reporting Limit(MRL)</b>	<b>Units</b>	<b>Completed Analysis Date &amp; Time</b>	<b>Chemist</b>
Antimony by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Barium by ICP-OES 200.7	41.0	10.0	ppb	5/19/17 16:36	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	5/19/17 16:36	PRC
Boron - EPA 200.7	Less than	1000	ppb	5/19/17 16:36	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Calcium EPA 200.7	2664	100	ppb	5/19/17 16:36	PRC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	5/19/17 16:36	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/17/17 15:06	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	5/19/17 08:10	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



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 Fax: (803) 217-9911

May 22, 2017

<b>REPORT TO:</b>
Mike Moore

Sample ID: **AB27064**

**Cope Well Field Blank T Metal CCR**

Date & Time Sampled: May 15, 2017 13:40  
 Date & Time Submitted: May 16, 2017 16:08  
 Collected by: C.SANDEL Location Code: COFBTM

Login Record File: 170517001

<b>CERTIFIED BY SCDHEC (LAB ID 32006):</b>	<b>Result</b>	<b>Reporting Limit(MRL)</b>	<b>Units</b>	<b>Completed Analysis Date &amp; Time</b>	<b>Chemist</b>
Antimony by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Barium by ICP-OES 200.7	Less than	10.0	ppb	5/19/17 16:36	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	5/19/17 16:36	PRC
Boron - EPA 200.7	Less than	1000	ppb	5/19/17 16:36	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Calcium EPA 200.7	Less than	100	ppb	5/19/17 16:36	PRC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	5/19/17 16:36	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/17/17 15:06	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	5/19/17 08:10	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
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 Columbia, SC 29212  
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 Fax: (803) 217-9911

May 22, 2017

<b>REPORT TO:</b>
Mike Moore

Sample ID: **AB27065**

**Cope Well LF-2 T Metal CCR**

Date & Time Sampled: May 15, 2017 13:45  
 Date & Time Submitted: May 16, 2017 16:08  
 Collected by: C.SANDEL Location Code: COLF2TM

LF-2

Login Record File: 170517001

<b>CERTIFIED BY SCDHEC (LAB ID 32006):</b>	<b>Result</b>	<b>Reporting Limit(MRL)</b>	<b>Units</b>	<b>Completed Analysis Date &amp; Time</b>	<b>Chemist</b>
Antimony by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Barium by ICP-OES 200.7	83.0	10.0	ppb	5/19/17 16:36	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	5/19/17 16:36	PRC
Boron - EPA 200.7	Less than	1000	ppb	5/19/17 16:36	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Calcium EPA 200.7	3727	100	ppb	5/19/17 16:36	PRC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Cobalt by ICP_MS 200.8	1.7	1.0	ppb	5/19/17 08:10	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	5/19/17 16:36	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/17/17 15:06	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	5/19/17 08:10	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
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 Fax: (803) 217-9911

May 22, 2017

REPORT TO:
Mike Moore

Sample ID: **AB27066**

**Cope Well LF-3 T Metal CCR**

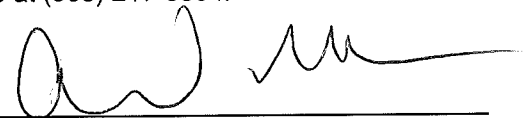
Date & Time Sampled: May 15, 2017 14:34  
 Date & Time Submitted: May 16, 2017 16:08  
 Collected by: C.SANDEL Location Code: COLF3TM

LF-3

Login Record File: 170517001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Barium by ICP-OES 200.7	28.2	10.0	ppb	5/19/17 16:36	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	5/19/17 16:36	PRC
Boron - EPA 200.7	Less than	1000	ppb	5/19/17 16:36	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Calcium EPA 200.7	934	100	ppb	5/19/17 16:36	PRC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	5/19/17 16:36	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/17/17 15:06	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	5/19/17 08:10	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
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 Tel: (803)217-9384  
 Fax: (803) 217-9911

May 22, 2017

REPORT TO:
Mike Moore

Sample ID: **AB27067**

**Cope Well LF-4 T Metal CCR**

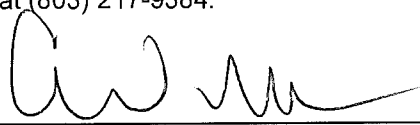
Date & Time Sampled: May 15, 2017 15:17  
 Date & Time Submitted: May 16, 2017 16:08  
 Collected by: C.SANDEL Location Code: COLF4TM

LF-4

Login Record File: 170517001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Barium by ICP-OES 200.7	Less than	10.0	ppb	5/19/17 16:36	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	5/19/17 16:36	PRC
Boron - EPA 200.7	Less than	1000	ppb	5/19/17 16:36	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Calcium EPA 200.7	1281	100	ppb	5/19/17 16:36	PRC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	5/19/17 16:36	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/17/17 15:06	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	5/19/17 08:10	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



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May 22, 2017

REPORT TO:
Mike Moore

Sample ID: **AB27068**

**Cope Well LF-5 T Metal CCR**

Date & Time Sampled: May 15, 2017 15:56  
 Date & Time Submitted: May 16, 2017 16:08  
 Collected by: C.SANDEL Location Code: COLF5TM

LF-5

Login Record File: 170517001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Barium by ICP-OES 200.7	26.0	10.0	ppb	5/19/17 16:36	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	5/19/17 16:36	PRC
Boron - EPA 200.7	Less than	1000	ppb	5/19/17 16:36	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Calcium EPA 200.7	2151	100	ppb	5/19/17 16:36	PRC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	5/19/17 16:36	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/17/17 15:06	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	5/19/17 08:10	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 





Central Laboratory (P-08)  
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May 22, 2017

REPORT TO:
Mike Moore

Sample ID: **AB27069**

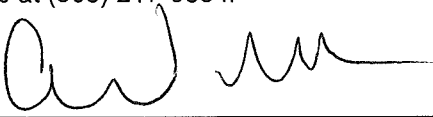
**Cope Well Duplicate T Metal CCR**

Date & Time Sampled: May 15, 2017 16:10  
 Date & Time Submitted: May 16, 2017 16:08  
 Collected by: C.SANDEL Location Code: CODUPTM

Login Record File: 170517001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Barium by ICP-OES 200.7	26.7	10.0	ppb	5/19/17 16:36	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	5/19/17 16:36	PRC
Boron - EPA 200.7	Less than	1000	ppb	5/19/17 16:36	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Calcium EPA 200.7	2205	100	ppb	5/19/17 16:36	PRC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	5/19/17 16:36	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/17/17 15:06	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	5/19/17 08:10	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
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 Fax: (803) 217-9911

May 22, 2017

REPORT TO:
Mike Moore

Sample ID: **AB27070**

**Cope Well LF-6 T Metal CCR**

Date & Time Sampled: May 15, 2017 16:45  
 Date & Time Submitted: May 16, 2017 16:08  
 Collected by: C.SANDEL Location Code: COLF6TM

LF-6

Login Record File: 170517001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Barium by ICP-OES 200.7	21.8	10.0	ppb	5/19/17 16:36	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	5/19/17 16:36	PRC
Boron - EPA 200.7	Less than	1000	ppb	5/19/17 16:36	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Calcium EPA 200.7	2433	100	ppb	5/19/17 16:36	PRC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	5/19/17 16:36	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/17/17 15:06	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	5/19/17 08:10	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	5/19/17 08:10	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:10	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
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 Fax: (803) 217-9911

May 22, 2017

REPORT TO:
Mike Moore

Sample ID: **AB27071**

**Cope GW Well MW-16 Total Metal (RCRA)**

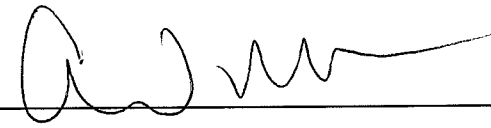
Date & Time Sampled: May 16, 2017 07:42  
 Date & Time Submitted: May 16, 2017 16:08  
 Collected by: C.SANDEL Location Code: COG16TM

MW-16

Login Record File: 170517001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:43	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:43	MC
Barium by ICP-OES 200.7	11.8	10.0	ppb	5/19/17 16:36	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	5/19/17 16:36	PRC
Boron - EPA 200.7	Less than	1000	ppb	5/19/17 16:36	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/19/17 08:43	MC
Calcium EPA 200.7	1783	100	ppb	5/19/17 16:36	PRC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:43	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:43	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:43	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	5/19/17 16:36	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/19/17 14:25	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	5/19/17 08:43	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	5/19/17 08:43	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:43	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
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 Fax: (803) 217-9911

May 22, 2017

<b>REPORT TO:</b>
Mike Moore

Sample ID: **AB27072**

**Cope GW Well MW-6 Total Metal (RCRA)**

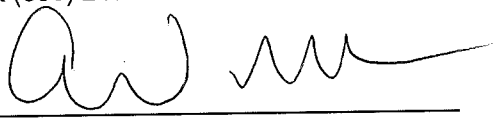
Date & Time Sampled: May 16, 2017 08:38  
 Date & Time Submitted: May 16, 2017 16:08  
 Collected by: C.SANDEL Location Code: COG06TM

MW-06

Login Record File: 170517001

<b>CERTIFIED BY SCDHEC (LAB ID 32006):</b>	<b>Result</b>	<b>Reporting Limit(MRL)</b>	<b>Units</b>	<b>Completed Analysis Date &amp; Time</b>	<b>Chemist</b>
Antimony by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:43	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:43	MC
Barium by ICP-OES 200.7	127	10.0	ppb	5/19/17 16:36	PRC
Beryllium EPA 200.7	Less than	2.0	ppb	5/19/17 16:36	PRC
Boron - EPA 200.7	Less than	1000	ppb	5/19/17 16:36	PRC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/19/17 08:43	MC
Calcium EPA 200.7	10090	100	ppb	5/19/17 16:36	PRC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:43	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	5/19/17 08:43	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:43	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	5/19/17 16:36	PRC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/19/17 14:25	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	5/19/17 08:43	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	5/19/17 08:43	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	5/19/17 08:43	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 

**EPA CCR Rule Compliance Monitoring Wells  
Groundwater Monitoring Data  
South Carolina Electric & Gas: Cope Station Class Three Landfill**

Cope Station Class Three Landfill

Monitoring Well ID	Well Data			7/27-28/2017				Final Water Quality Indicator Parameters					
	PVC Pipe Elevation, ft.	Ground Surface Elevation, ft.	Stickup, ft.	Initial Gauging		Final Gauging		Temperature °C	pH S.U.	Sp. Cond. µS/cm	Turbidity NTU	ORP mV	DO mg/L
				Depth to Groundwater, ft.	Groundwater Elevation, ft.	Depth to Groundwater, ft.	Groundwater Elevation, ft.						
LF-1	176.41	173.74	2.67	9.40	167.01	9.62	166.79	23.9	4.2	111	5.21	132	3.49
LF-2	190.08	187.15	2.93	26.86	163.22	26.99	163.09	22.3	4.0	155	7.82	240	1.45
LF-3	187.19	184.21	2.98	25.33	161.86	26.26	160.93	22.6	4.2	39	5.81	228	1.68
LF-4	184.20	181.37	2.83	24.86	159.34	24.93	159.27	22.1	4.3	55	7.15	177	4.31
LF-5	177.95	175.38	2.57	21.38	156.57	21.41	156.54	22.9	4.2	68	5.13	257	5.22
LF-6	178.57	175.75	2.82	20.40	158.17	20.42	158.15	22.7	4.1	68	5.12	245	5.17
MW-6	187.95	185.20	2.75	15.88	172.07	15.91	172.04	18.2	4.1	194	5.17	201	6.59
MW-16	182.52	179.70	2.82	10.60	171.92	10.65	171.87	18.0	4.1	64	5.27	136	6.55

# GEL LABORATORIES LLC

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

## Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC

Client SDG: 429194 GEL Work Order: 429194

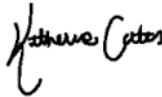
**The Qualifiers in this report are defined as follows:**

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- H Analytical holding time was exceeded
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

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 Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Jake Crook.



Reviewed by \_\_\_\_\_

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: August 18, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope Station

Client Sample ID: LF-1	Project: SCEG01416C
Sample ID: 429194001	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 27-JUL-17 11:49	
Receive Date: 28-JUL-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Fluoride	J	0.0624	0.033	0.100	mg/L		1	MXL2	08/05/17	0004	1688925	1
Chloride		15.0	0.134	0.400	mg/L		2	MXL2	08/07/17	2013	1688925	2
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	08/15/17	2249	1686812	3
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		1.68	1.62	3.00	pCi/L			JXC9	08/11/17	1125	1686864	4
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.397	0.169	1.00	pCi/L			MXH8	08/14/17	0930	1686859	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	07/31/17	0823	1686811

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	EPA 200.8 SC_NPDES	
4	EPA 904.0/SW846 9320 Modified	
5	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			99.8	(15%-125%)

**Notes:**

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: August 18, 2017

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd

Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope Station

Client Sample ID: LF-1

Sample ID: 429194001

Project: SCEG01416C

Client ID: GEEL003

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Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
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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



# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: August 18, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope Station

Client Sample ID: Field Blank	Project: SCEG01416C
Sample ID: 429194002	Client ID: GEEL003
Matrix: Water	
Collect Date: 27-JUL-17 11:55	
Receive Date: 28-JUL-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride	J	0.137	0.067	0.200	mg/L		1	MXL2	08/05/17	0033	1688925	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	08/15/17	2302	1686812	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	1.77	3.00	pCi/L			JXC9	08/11/17	1125	1686864	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.643	0.220	1.00	pCi/L			MXH8	08/14/17	0930	1686859	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	07/31/17	0823	1686811

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			96.5	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: August 18, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope Station

Client Sample ID: LF-2	Project: SCEG01416C
Sample ID: 429194003	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 27-JUL-17 12:57	
Receive Date: 28-JUL-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Fluoride		0.124	0.033	0.100	mg/L		1	MXL2	08/05/17	0102	1688925	1
Chloride		27.1	0.335	1.00	mg/L		5	MXL2	08/07/17	2042	1688925	2
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	08/15/17	2305	1686812	3
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		3.76	1.28	3.00	pCi/L			JXC9	08/11/17	1235	1686864	4
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		1.47	0.303	1.00	pCi/L			MXH8	08/14/17	0930	1686859	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	07/31/17	0823	1686811

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	EPA 200.8 SC_NPDES	
4	EPA 904.0/SW846 9320 Modified	
5	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			97.7	(15%-125%)

**Notes:**

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: August 18, 2017

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner  
Project: Cope Station

Client Sample ID: LF-2

Sample ID: 429194003

Project: SCEG01416C

Client ID: GEEL003

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Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: August 18, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope Station

Client Sample ID: LF-3	Project: SCEG01416C
Sample ID: 429194004	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 27-JUL-17 13:41	
Receive Date: 28-JUL-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		3.42	0.067	0.200	mg/L		1	MXL2	08/05/17	0131	1688925	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	08/15/17	2315	1686812	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	2.41	3.00	pCi/L			JXC9	08/11/17	1127	1686864	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.626	0.165	1.00	pCi/L			MXH8	08/14/17	0930	1686859	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	07/31/17	0823	1686811

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			91.2	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: August 18, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope Station

Client Sample ID: LF-4	Project: SCEG01416C
Sample ID: 429194005	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 27-JUL-17 14:27	
Receive Date: 28-JUL-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		3.68	0.067	0.200	mg/L		1	MXL2	08/05/17	0200	1688925	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	08/15/17	2318	1686812	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		1.66	1.66	3.00	pCi/L			JXC9	08/11/17	1127	1686864	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.623	0.345	1.00	pCi/L			MXH8	08/14/17	0930	1686859	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	07/31/17	0823	1686811

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			97.3	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: August 18, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope Station

Client Sample ID: LF-5	Project: SCEG01416C
Sample ID: 429194006	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 27-JUL-17 15:05	
Receive Date: 28-JUL-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		7.02	0.067	0.200	mg/L		1	MXL2	08/05/17	0229	1688925	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	08/15/17	2321	1686812	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	1.82	3.00	pCi/L			JXC9	08/11/17	1127	1686864	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.403	0.171	1.00	pCi/L			MXH8	08/14/17	0930	1686859	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	07/31/17	0823	1686811

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			96.6	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: August 18, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope Station

Client Sample ID: DUP	Project: SCEG01416C
Sample ID: 429194007	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 27-JUL-17 15:20	
Receive Date: 28-JUL-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		7.02	0.067	0.200	mg/L		1	MXL2	08/05/17	0257	1688925	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	08/15/17	2324	1686812	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228	U	ND	2.20	3.00	pCi/L			JXC9	08/11/17	1127	1686864	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.506	0.194	1.00	pCi/L			MXH8	08/14/17	0930	1686859	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	07/31/17	0823	1686811

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			88.9	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: August 18, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope Station

Client Sample ID: LF-6	Project: SCEG01416C
Sample ID: 429194008	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 27-JUL-17 16:01	
Receive Date: 28-JUL-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		7.58	0.067	0.200	mg/L		1	MXL2	08/05/17	0326	1688925	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	08/15/17	2328	1686812	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		3.82	2.05	3.00	pCi/L			JXC9	08/11/17	1127	1686864	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226	U	ND	0.346	1.00	pCi/L			MXH8	08/14/17	0930	1686859	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	07/31/17	0823	1686811

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			98.7	(15%-125%)

**Notes:**

Column headers are defined as follows:

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



# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: August 18, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope Station

Client Sample ID: MW-16	Project: SCEG01416C
Sample ID: 429194009	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 28-JUL-17 07:49	
Receive Date: 28-JUL-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		3.28	0.067	0.200	mg/L		1	MXL2	08/05/17	0453	1688925	1
Fluoride	U	ND	0.033	0.100	mg/L		1					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	08/15/17	2331	1686812	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		2.32	2.14	3.00	pCi/L			JXC9	08/11/17	1127	1686864	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		0.570	0.210	1.00	pCi/L			MXH8	08/14/17	1005	1686859	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	07/31/17	0823	1686811

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			85.9	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: August 18, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope Station

Client Sample ID: MW-06	Project: SCEG01416C
Sample ID: 429194010	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 28-JUL-17 08:33	
Receive Date: 28-JUL-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>												
<b>EPA300.0 Fluoride in Liquid "As Received"</b>												
Chloride		18.0	0.335	1.00	mg/L		5	MXL2	08/07/17	2111	1688925	1
Fluoride	U	ND	0.165	0.500	mg/L		5					
<b>Metals Analysis-ICP-MS</b>												
<b>200.8/200.2 NPDES Metals "As Received"</b>												
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	08/15/17	2334	1686812	2
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Ra228, Liquid "As Received"</b>												
Radium-228		4.27	1.71	3.00	pCi/L			JXC9	08/11/17	1235	1686864	3
<b>Rad Radium-226</b>												
<b>Lucas Cell, Ra226, liquid "As Received"</b>												
Radium-226		3.36	0.170	1.00	pCi/L			MXH8	08/14/17	1005	1686859	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	SXW1	07/31/17	0823	1686811

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			99.9	(15%-125%)

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## QC Summary

Report Date: August 18, 2017

Page 1 of 4

GEL Engineering, LLC  
2040 Savage Rd  
Charleston, South Carolina

Contact: Robert Gardner

Workorder: 429194

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Ion Chromatography</b>											
Batch	1688925										
QC1203847181	429194010	DUP									
Chloride		18.0		18.0	mg/L	0.12		(0%-20%)	MXL2	08/07/17	21:40
Fluoride	U	ND	U	ND	mg/L	N/A					
QC1203847180	LCS										
Chloride	5.00			4.68	mg/L		93.6	(90%-110%)		08/04/17	23:35
Fluoride	2.50			2.37	mg/L		94.7	(90%-110%)			
QC1203847179	MB										
Chloride			U	ND	mg/L					08/04/17	23:06
Fluoride			U	ND	mg/L						
QC1203847182	429194010	PS									
Chloride	5.00	3.60		8.65	mg/L		101	(90%-110%)		08/07/17	22:09
Fluoride	2.50	U	ND	2.37	mg/L		94.7	(90%-110%)			
<b>Metals Analysis - ICPMS</b>											
Batch	1686812										
QC1203841959	429194001	DUP									
Lithium		U	ND	U	ND	ug/L	N/A		BAJ	08/15/17	22:53
QC1203841958	LCS										
Lithium	50.0			53.0	ug/L		106	(80%-120%)		08/15/17	22:46
QC1203841957	MB										
Lithium			U	ND	ug/L					08/15/17	22:43

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 429194

Page 2 of 4

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Metals Analysis - ICPMS</b>											
Batch	1686812										
QC1203841960	429194001	MS									
Lithium	50.0	U	ND	53.8	ug/L		106	(75%-125%)	BAJ	08/15/17	22:56
QC1203841961	429194001	SDILT									
Lithium		U	ND	ND	ug/L	N/A		(0%-10%)		08/15/17	22:59
<b>Rad Gas Flow</b>											
Batch	1686864										
QC1203842078	429194003	DUP									
Radium-228			3.76	3.71	pCi/L	1.3		(0% - 100%)	JXC9	08/11/17	12:35
QC1203842079	LCS										
Radium-228	19.8			20.6	pCi/L		104	(75%-125%)		08/11/17	11:27
QC1203842077	MB										
Radium-228			U	-0.0595	pCi/L					08/11/17	11:27
<b>Rad Ra-226</b>											
Batch	1686859										
QC1203842066	429194001	DUP									
Radium-226			0.397	0.467	pCi/L	16.2		(0% - 100%)	MXH8	08/14/17	10:05
QC1203842068	LCS										
Radium-226	26.0			22.2	pCi/L		85.5	(75%-125%)		08/14/17	10:05
QC1203842065	MB										
Radium-226			U	0.134	pCi/L					08/14/17	10:05
QC1203842067	429194001	MS									
Radium-226	130		0.397	118	pCi/L		90.3	(75%-125%)		08/14/17	10:05

**Notes:**

The Qualifiers in this report are defined as follows:

- \*\* Analyte is a Tracer compound
- < Result is less than value reported

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 429194

Page 3 of 4

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
>											
B											
BD											
E											
E											
FA											
FB											
H											
J											
K											
L											
M											
M											
N											
N/A											
N1											
ND											
NJ											
Q											
R											
R											
U											
UI											
UJ											
UL											
X											
Y											
Z											
^											
d											
e											
h											

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 429194

Page 4 of 4

<u>Parmname</u>	<u>NOM</u>	<u>Sample Qual</u>	<u>QC</u>	<u>Units</u>	<u>RPD%</u>	<u>REC%</u>	<u>Range</u>	<u>Anlst</u>	<u>Date</u>	<u>Time</u>
-----------------	------------	--------------------	-----------	--------------	-------------	-------------	--------------	--------------	-------------	-------------

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.



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

August 01, 2017

<b>REPORT TO:</b>
Mike Moore C221

Sample ID: **AB28016**

**Cope Well LF-1 CCR**

Date & Time Sampled: July 27, 2017 11:49  
 Date & Time Submitted: July 28, 2017 10:45  
 Collected by: SANDEL,C Location Code: COLF1TDS

LF-1

Login Record File: 170728001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	16.03	0.50	mg/L	7/30/17 03:48	BB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.91	0.00	S.U.	7/31/17 11:53	PRC
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	7/30/17 03:48	BB
Total Dissolved Solid-SM2540C	70	2.0	mg/L	7/28/17 13:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

August 01, 2017

REPORT TO:
Mike Moore C221

Sample ID: **AB28018**

**Cope Well LF-2 CCR**

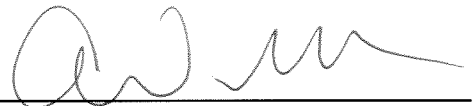
Date & Time Sampled: July 27, 2017 12:57  
 Date & Time Submitted: July 28, 2017 10:45  
 Collected by: SANDEL,C Location Code: COLF2TDS

LF-2

Login Record File: 170728001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	28.42	0.50	mg/L	7/30/17 03:48	BB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	5.09	0.00	S.U.	7/31/17 11:53	PRC
Sulfates by IC EPA 300.0	2.62	0.50	mg/L	7/30/17 03:48	BB
Total Dissolved Solid-SM2540C	82	2.0	mg/L	8/1/17 12:10	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 





Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

August 01, 2017

REPORT TO:
Mike Moore C221

Sample ID: **AB28020**

**Cope Well LF-3 CCR**

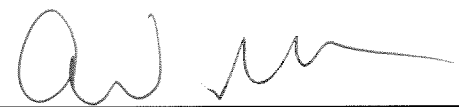
Date & Time Sampled: July 27, 2017 13:41  
 Date & Time Submitted: July 28, 2017 10:45  
 Collected by: SANDEL,C Location Code: COLF3TDS

LF-3

Login Record File: 170728001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	3.44	0.50	mg/L	7/30/17 03:48	BB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.89	0.00	S.U.	7/31/17 11:53	PRC
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	7/30/17 03:48	BB
Total Dissolved Solid-SM2540C	29	2.0	mg/L	8/1/17 12:10	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

August 01, 2017

REPORT TO:
Mike Moore C221

Sample ID: **AB28022**  
**Cope Well LF-4 CCR**

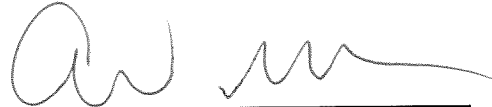
Date & Time Sampled: July 27, 2017 14:27  
 Date & Time Submitted: July 28, 2017 10:45  
 Collected by: SANDEL,C Location Code: COLF4TDS

LF-4

Login Record File: 170728001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	3.74	0.50	mg/L	7/30/17 03:48	BB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.73	0.00	S.U.	7/31/17 11:53	PRC
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	7/30/17 03:48	BB
Total Dissolved Solid-SM2540C	41	2.0	mg/L	8/1/17 12:10	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

August 01, 2017

REPORT TO:
Mike Moore C221

Sample ID: **AB28024**  
**Cope Well LF-5 CCR**

Date & Time Sampled: July 27, 2017 15:05  
 Date & Time Submitted: July 28, 2017 10:45  
 Collected by: SANDEL,C Location Code: COLF5TDS

LF-5

Login Record File: 170728001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	6.99	0.50	mg/L	7/30/17 03:48	BB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.78	0.00	S.U.	7/31/17 11:53	PRC
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	7/30/17 03:48	BB
Total Dissolved Solid-SM2540C	54	2.0	mg/L	8/1/17 12:10	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
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 Columbia, SC 29212  
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 Fax: (803) 217-9911

August 01, 2017

<b>REPORT TO:</b>
Mike Moore C221

Sample ID: **AB28026**

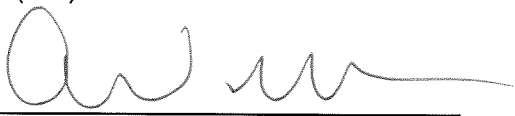
**Cope Well LF-5 Duplicate CCR**

Date & Time Sampled: July 27, 2017 15:20  
 Date & Time Submitted: July 28, 2017 10:45  
 Collected by: SANDEL,C Location Code: CODUPTDS

Login Record File: 170728001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	6.98	0.50	mg/L	7/30/17 03:48	BB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.62	0.00	S.U.	7/31/17 11:53	PRC
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	7/30/17 03:48	BB
Total Dissolved Solid-SM2540C	45	2.0	mg/L	8/1/17 12:10	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

August 01, 2017

REPORT TO:
Mike Moore C221

Sample ID: **AB28028**

**Cope Well LF-6 CCR**

Date & Time Sampled: July 27, 2017 16:01  
 Date & Time Submitted: July 28, 2017 10:45  
 Collected by: SANDEL,C Location Code: COLF6TDS

LF-6

Login Record File: 170728001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	7.49	0.50	mg/L	7/30/17 03:48	BB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.82	0.00	S.U.	7/31/17 11:53	PRC
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	7/30/17 03:48	BB
Total Dissolved Solid-SM2540C	52	2.0	mg/L	8/1/17 12:10	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

August 01, 2017

REPORT TO:
Mike Moore C221

Sample ID: **AB28030**

**Cope Well MW-16 TDS CCR**

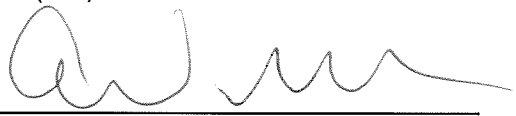
Date & Time Sampled: July 28, 2017 07:49  
 Date & Time Submitted: July 28, 2017 10:45  
 Collected by: SANDEL,C Location Code: COMW16TDS

LF-6

Login Record File: 170728001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	3.38	0.50	mg/L	7/30/17 03:48	BB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.89	0.00	S.U.	7/31/17 11:53	PRC
Sulfates by IC EPA 300.0	1.03	0.50	mg/L	7/30/17 03:48	BB
Total Dissolved Solid-SM2540C	43	2.0	mg/L	8/1/17 12:10	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
2102 North Lake Drive  
Columbia, SC 29212  
Tel: (803)217-9384  
Fax: (803) 217-9911

August 01, 2017

<b>REPORT TO:</b>
Mike Moore C221

Sample ID: **AB28032**

**Cope Well MW-06 TDS CCR**

Date & Time Sampled: July 28, 2017 08:33  
Date & Time Submitted: July 28, 2017 10:45  
Collected by: SANDEL,C Location Code: COMW06TDS

LF-6

Login Record File: 170728001

<b>CERTIFIED BY SCDHEC (LAB ID 32006):</b>	<b>Result</b>	<b>Reporting Limit(MRL)</b>	<b>Units</b>	<b>Completed Analysis Date &amp; Time</b>	<b>Chemist</b>
Chlorides by IC EPA 300.0	19.72	0.50	mg/L	7/30/17 03:48	BB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.43	0.00	S.U.	7/31/17 11:53	PRC
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	7/30/17 03:48	BB
Total Dissolved Solid-SM2540C	123	2.0	mg/L	8/1/17 12:10	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

August 01, 2017

REPORT TO:
Mike Moore C221

Sample ID: **AB28034**

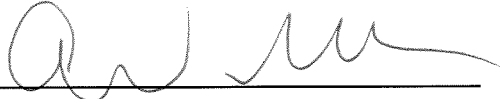
**Cope Well Field Blank CCR**

Date & Time Sampled: July 27, 2017 11:55  
 Date & Time Submitted: July 28, 2017 10:45  
 Collected by: SANDEL,C Location Code: COFBTDS

Login Record File: 170728001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	Less than	0.50	mg/L	7/30/17 03:48	BB
pH by SM4500HB(2011)	7.24	0.00	S.U.	7/31/17 11:53	PRC
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	7/30/17 03:48	BB
Total Dissolved Solid-SM2540C	10	2.0	mg/L	8/1/17 12:10	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 





Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

August 02, 2017

REPORT TO:
Mike Moore C221

Sample ID: **AB28017**

**Cope Well LF-1 T Metal CCR**

Date & Time Sampled: July 27, 2017 11:49  
 Date & Time Submitted: July 28, 2017 10:45  
 Collected by: SANDEL,C Location Code: COLF1TM

LF-1

Login Record File: 170728001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Barium by ICP-OES 200.7	40.8	10.0	ppb	8/1/17 13:40	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	8/1/17 13:40	CDB
Boron - EPA 200.7	Less than	1000	ppb	8/1/17 13:40	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Calcium EPA 200.7	2467	1000	ppb	8/1/17 13:40	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Lead by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Lithium (CWA) 200.7	Less than	2.0	ppb	8/1/17 13:40	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	8/1/17 14:53	MC
Molybdenum - EPA 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Selenium by ICP-MS 200.8	Less than	5.0	ppb	8/2/17 12:39	CDB
Thallium by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

August 02, 2017

REPORT TO:
Mike Moore C221

Sample ID: **AB28019**

**Cope Well LF-2 T Metal CCR**

Date & Time Sampled: July 27, 2017 12:57  
 Date & Time Submitted: July 28, 2017 10:45  
 Collected by: SANDEL,C Location Code: COLF2TM

LF-2

Login Record File: 170728001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Barium by ICP-OES 200.7	94.8	10.0	ppb	8/1/17 13:40	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	8/1/17 13:40	CDB
Boron - EPA 200.7	Less than	1000	ppb	8/1/17 13:40	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Calcium EPA 200.7	3349	1000	ppb	8/1/17 13:40	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Cobalt by ICP_MS 200.8	3.2	1.0	ppb	8/2/17 12:39	CDB
Lead by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Lithium (CWA) 200.7	Less than	2.0	ppb	8/1/17 13:40	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	8/1/17 14:53	MC
Molybdenum - EPA 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Selenium by ICP-MS 200.8	Less than	5.0	ppb	8/2/17 12:39	CDB
Thallium by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



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August 02, 2017

REPORT TO:
Mike Moore C221

Sample ID: **AB28021**  
**Cope Well LF-3 T Metal CCR**

Date & Time Sampled: July 27, 2017 13:41  
 Date & Time Submitted: July 28, 2017 10:45  
 Collected by: SANDEL,C Location Code: COLF3TM

LF-3

Login Record File: 170728001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Barium by ICP-OES 200.7	29.6	10.0	ppb	8/1/17 13:40	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	8/1/17 13:40	CDB
Boron - EPA 200.7	Less than	1000	ppb	8/1/17 13:40	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Calcium EPA 200.7	823	100	ppb	8/1/17 13:40	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Cobalt by ICP_MS 200.8	1.2	1.0	ppb	8/2/17 12:39	CDB
Lead by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Lithium (CWA) 200.7	Less than	2.0	ppb	8/1/17 13:40	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	8/1/17 14:53	MC
Molybdenum - EPA 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Selenium by ICP-MS 200.8	Less than	5.0	ppb	8/2/17 12:39	CDB
Thallium by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



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 Fax: (803) 217-9911

August 02, 2017

REPORT TO:
Mike Moore C221

Sample ID: **AB28023**

**Cope Well LF-4 T Metal CCR**

Date & Time Sampled: July 27, 2017 14:27  
 Date & Time Submitted: July 28, 2017 10:45  
 Collected by: SANDEL,C Location Code: COLF4TM

LF-4

Login Record File: 170728001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Barium by ICP-OES 200.7	12.8	10.0	ppb	8/1/17 13:40	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	8/1/17 13:40	CDB
Boron - EPA 200.7	Less than	1000	ppb	8/1/17 13:40	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Calcium EPA 200.7	1100	1000	ppb	8/1/17 13:40	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Lead by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Lithium (CWA) 200.7	Less than	2.0	ppb	8/1/17 13:40	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	8/1/17 14:53	MC
Molybdenum - EPA 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Selenium by ICP-MS 200.8	Less than	5.0	ppb	8/2/17 12:39	CDB
Thallium by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
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August 02, 2017

REPORT TO:
Mike Moore C221

Sample ID: **AB28025**

**Cope Well LF-5 T Metal CCR**

Date & Time Sampled: July 27, 2017 15:05  
 Date & Time Submitted: July 28, 2017 10:45  
 Collected by: SANDEL,C Location Code: COLF5TM

LF-5

Login Record File: 170728001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Barium by ICP-OES 200.7	25.4	10.0	ppb	8/1/17 13:40	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	8/1/17 13:40	CDB
Boron - EPA 200.7	Less than	1000	ppb	8/1/17 13:40	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Calcium EPA 200.7	2191	1000	ppb	8/1/17 13:40	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Lead by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Lithium (CWA) 200.7	Less than	2.0	ppb	8/1/17 13:40	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	8/1/17 14:53	MC
Molybdenum - EPA 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Selenium by ICP-MS 200.8	Less than	5.0	ppb	8/2/17 12:39	CDB
Thallium by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

August 02, 2017

REPORT TO:
Mike Moore C221

Sample ID: **AB28027**

**Cope Well LF-5 Duplicate T Metal CCR**

Date & Time Sampled: July 27, 2017 15:20  
 Date & Time Submitted: July 28, 2017 10:45  
 Collected by: SANDEL,C Location Code: CODUPTM

Login Record File: 170728001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Barium by ICP-OES 200.7	24.7	10.0	ppb	8/1/17 13:40	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	8/1/17 13:40	CDB
Boron - EPA 200.7	Less than	1000	ppb	8/1/17 13:40	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Calcium EPA 200.7	2146	1000	ppb	8/1/17 13:40	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Lead by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Lithium (CWA) 200.7	Less than	2.0	ppb	8/1/17 13:40	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	8/1/17 14:53	MC
Molybdenum - EPA 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Selenium by ICP-MS 200.8	Less than	5.0	ppb	8/2/17 12:39	CDB
Thallium by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



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August 02, 2017

REPORT TO:
Mike Moore C221

Sample ID: **AB28029**

**Cope Well LF-6 T Metal CCR**

Date & Time Sampled: July 27, 2017 16:01  
 Date & Time Submitted: July 28, 2017 10:45  
 Collected by: SANDEL,C Location Code: COLF6TM

LF-6

Login Record File: 170728001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Barium by ICP-OES 200.7	21.2	10.0	ppb	8/1/17 13:40	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	8/1/17 13:40	CDB
Boron - EPA 200.7	Less than	1000	ppb	8/1/17 13:40	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Calcium EPA 200.7	2311	1000	ppb	8/1/17 13:40	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Lead by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Lithium (CWA) 200.7	Less than	2.0	ppb	8/1/17 13:40	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	8/1/17 14:53	MC
Molybdenum - EPA 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Selenium by ICP-MS 200.8	Less than	5.0	ppb	8/2/17 12:39	CDB
Thallium by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

August 02, 2017

REPORT TO:
Mike Moore C221

Sample ID: **AB28031**

**Cope Well MW-16 T Metal CCR**

Date & Time Sampled: July 28, 2017 07:49  
 Date & Time Submitted: July 28, 2017 10:45  
 Collected by: SANDEL,C Location Code: COMW16TM

MW-16

Login Record File: 170728001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Barium by ICP-OES 200.7	11.1	10.0	ppb	8/1/17 13:40	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	8/1/17 13:40	CDB
Boron - EPA 200.7	Less than	1000	ppb	8/1/17 13:40	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Calcium EPA 200.7	1969	1000	ppb	8/1/17 13:40	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Lead by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Lithium (CWA) 200.7	Less than	2.0	ppb	8/1/17 13:40	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	8/1/17 14:53	MC
Molybdenum - EPA 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Selenium by ICP-MS 200.8	Less than	5.0	ppb	8/2/17 12:39	CDB
Thallium by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 





Central Laboratory (P-08)  
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 Tel: (803)217-9384  
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August 02, 2017

REPORT TO:
Mike Moore C221

Sample ID: **AB28033**

**Cope Well MW-06 T Metal CCR**

Date & Time Sampled: July 28, 2017 08:33  
 Date & Time Submitted: July 28, 2017 10:45  
 Collected by: SANDEL,C Location Code: COMW06TM

MW-06

Login Record File: 170728001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Barium by ICP-OES 200.7	115	10.0	ppb	8/1/17 13:40	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	8/1/17 13:40	CDB
Boron - EPA 200.7	Less than	1000	ppb	8/1/17 13:40	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Calcium EPA 200.7	10590	1000	ppb	8/1/17 13:40	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Lead by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Lithium (CWA) 200.7	Less than	2.0	ppb	8/1/17 13:40	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	8/1/17 14:53	MC
Molybdenum - EPA 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Selenium by ICP-MS 200.8	Less than	5.0	ppb	8/2/17 12:39	CDB
Thallium by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
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 Tel: (803)217-9384  
 Fax: (803) 217-9911

August 02, 2017

REPORT TO:
Mike Moore C221

Sample ID: **AB28035**

**Cope Well Field Blank T Metal CCR**

Date & Time Sampled: July 27, 2017 11:55  
 Date & Time Submitted: July 28, 2017 10:45  
 Collected by: SANDEL,C Location Code: COFBTM

Login Record File: 170728001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Barium by ICP-OES 200.7	Less than	10.0	ppb	8/1/17 13:40	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	8/1/17 13:40	CDB
Boron - EPA 200.7	Less than	1000	ppb	8/1/17 13:40	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Calcium EPA 200.7	Less than	100	ppb	8/1/17 13:40	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Lead by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Lithium (CWA) 200.7	Less than	2.0	ppb	8/1/17 13:40	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	8/1/17 14:53	MC
Molybdenum - EPA 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB
Selenium by ICP-MS 200.8	Less than	5.0	ppb	8/2/17 12:39	CDB
Thallium by ICP-MS 200.8	Less than	1.0	ppb	8/2/17 12:39	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 

**EPA CCR Rule Compliance Monitoring Wells  
Groundwater Monitoring Data  
South Carolina Electric & Gas: Cope Station Class Three Landfill**

Cope Station Class Three Landfill

Monitoring Well ID	Well Data			9/25-26/2017				Final Water Quality Indicator Parameters					
	PVC Pipe Elevation, ft.	Ground Surface Elevation, ft.	Stickup, ft.	Initial Gauging		Final Gauging		Temperature °C	pH S.U.	Sp. Cond. µS/cm	Turbidity NTU	ORP mV	DO mg/L
				Depth to Groundwater, ft.	Groundwater Elevation, ft.	Depth to Groundwater, ft.	Groundwater Elevation, ft.						
LF-1	176.41	173.74	2.67	9.68	166.73	9.97	166.44	26.1	4.8	49	8.23	217	2.81
LF-2	190.08	187.15	2.93	27.00	163.08	27.19	162.89	25.4	4.3	135	7.77	278	1.17
LF-3	187.19	184.21	2.98	25.68	161.51	27.08	160.11	25.1	4.4	32	6.15	290	1.91
LF-4	184.20	181.37	2.83	25.44	158.76	25.49	158.71	24.8	4.3	49	7.63	299	3.19
LF-5	177.95	175.38	2.57	21.84	156.11	21.90	156.05	25.4	4.2	65	5.36	304	4.44
LF-6	178.57	175.75	2.82	21.19	157.38	21.20	157.37	24.1	4.4	61	6.24	260	3.95
MW-6	187.95	185.20	2.75	16.28	171.67	16.31	171.64	20.1	4.0	193	6.18	330	4.19
MW-16	182.52	179.70	2.82	11.24	171.28	11.28	171.24	20.1	4.2	49	5.32	307	4.32

## GEL LABORATORIES LLC

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

### Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC

Client SDG: 433625 GEL Work Order: 433625

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

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- H Analytical holding time was exceeded
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

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 Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Jake Crook.

Reviewed by \_\_\_\_\_



# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: October 3, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope Station

Client Sample ID: LF-1	Project: SCEG01416C
Sample ID: 433625001	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 25-SEP-17 13:29	
Receive Date: 26-SEP-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in Liquid "As Received"												
Chloride		8.52	0.067	0.200	mg/L		1	MAR1	09/28/17	1346	1704602	1
Fluoride	U	ND	0.033	0.100	mg/L		1					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: October 3, 2017

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd  
  
Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope Station

---

Client Sample ID: Field Blank Project: SCEG01416C  
Sample ID: 433625002 Client ID: GEEL003  
Matrix: Ground Water  
Collect Date: 25-SEP-17 13:15  
Receive Date: 26-SEP-17  
Collector: Client

---

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in Liquid "As Received"												
Chloride	J	0.0933	0.067	0.200	mg/L		1	MAR1	09/28/17	1513	1704602	1
Fluoride	U	ND	0.033	0.100	mg/L		1					

The following Analytical Methods were performed:

---

Method	Description	Analyst	Comments
1	EPA 300.0		

---

### Notes:

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: October 3, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope Station

Client Sample ID: LF-2	Project: SCEG01416C
Sample ID: 433625003	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 25-SEP-17 14:05	
Receive Date: 26-SEP-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in Liquid "As Received"												
Fluoride		0.104	0.033	0.100	mg/L		1	MAR1	09/28/17	1613	1704602	1
Chloride		23.6	0.670	2.00	mg/L		10	MAR1	10/02/17	1444	1704602	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: October 3, 2017

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd  
  
Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope Station

Client Sample ID: Dup Project: SCEG01416C  
Sample ID: 433625004 Client ID: GEEL003  
Matrix: Ground Water  
Collect Date: 25-SEP-17 14:15  
Receive Date: 26-SEP-17  
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in Liquid "As Received"												
Fluoride		0.102	0.033	0.100	mg/L		1	MAR1	09/28/17	1641	1704602	1
Chloride		23.2	0.670	2.00	mg/L		10	MAR1	10/02/17	1513	1704602	2

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	EPA 300.0		
2	EPA 300.0		

### Notes:

Column headers are defined as follows:

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



# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: October 3, 2017

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd  
  
Charleston, South Carolina 29417  
Contact: Robert Gardner  
Project: Cope Station

---

Client Sample ID:	LF-3	Project:	SCEG01416C
Sample ID:	433625005	Client ID:	GEEL003
Matrix:	Ground Water		
Collect Date:	25-SEP-17 15:00		
Receive Date:	26-SEP-17		
Collector:	Client		

---

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in Liquid "As Received"												
Chloride		3.38	0.067	0.200	mg/L		1	MAR1	09/28/17	1710	1704602	1
Fluoride	U	ND	0.033	0.100	mg/L		1					

The following Analytical Methods were performed:

---

Method	Description	Analyst	Comments
1	EPA 300.0		

### Notes:

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: October 3, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope Station

---

Client Sample ID: LF-4	Project: SCEG01416C
Sample ID: 433625006	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 25-SEP-17 15:44	
Receive Date: 26-SEP-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in Liquid "As Received"												
Chloride		4.63	0.067	0.200	mg/L		1	MAR1	09/28/17	1739	1704602	1
Fluoride	U	ND	0.033	0.100	mg/L		1					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: October 3, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope Station

Client Sample ID:	LF-5	Project:	SCEG01416C
Sample ID:	433625007	Client ID:	GEEL003
Matrix:	Ground Water		
Collect Date:	25-SEP-17 16:27		
Receive Date:	26-SEP-17		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in Liquid "As Received"												
Chloride		7.38	0.067	0.200	mg/L		1	MAR1	09/28/17	1905	1704602	1
Fluoride	U	ND	0.033	0.100	mg/L		1					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	

### Notes:

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: October 3, 2017

Company : GEL Engineering, LLC  
Address : 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner  
Project: Cope Station

---

Client Sample ID: LF-6	Project: SCEG01416C
Sample ID: 433625008	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 26-SEP-17 08:13	
Receive Date: 26-SEP-17	
Collector: Client	

---

---

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in Liquid "As Received"												
Chloride		7.35	0.067	0.200	mg/L		1	MAR1	09/28/17	1934	1704602	1
Fluoride	U	ND	0.033	0.100	mg/L		1					

---

The following Analytical Methods were performed:

---

Method	Description	Analyst	Comments
1	EPA 300.0		

---

### Notes:

Column headers are defined as follows:

DF: Dilution Factor

Lc/LC: Critical Level

DL: Detection Limit

PF: Prep Factor

MDA: Minimum Detectable Activity

RL: Reporting Limit

MDC: Minimum Detectable Concentration

SQL: Sample Quantitation Limit

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: October 3, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope Station

---

Client Sample ID: MW-16	Project: SCEG01416C
Sample ID: 433625009	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 26-SEP-17 09:22	
Receive Date: 26-SEP-17	
Collector: Client	

---

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in Liquid "As Received"												
Chloride		3.76	0.067	0.200	mg/L		1	MAR1	09/28/17	2003	1704602	1
Fluoride	U	ND	0.033	0.100	mg/L		1					

The following Analytical Methods were performed:

---

Method	Description	Analyst	Comments
1	EPA 300.0		

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: October 3, 2017

Company : GEL Engineering, LLC  
 Address : 2040 Savage Rd  
  
 Charleston, South Carolina 29417  
 Contact: Robert Gardner  
 Project: Cope Station

---

Client Sample ID: MW-06	Project: SCEG01416C
Sample ID: 433625010	Client ID: GEEL003
Matrix: Ground Water	
Collect Date: 26-SEP-17 10:23	
Receive Date: 26-SEP-17	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in Liquid "As Received"												
Fluoride	U	ND	0.033	0.100	mg/L		1	MAR1	09/28/17	2032	1704602	1
Chloride		17.2	0.335	1.00	mg/L		5	MAR1	10/02/17	1541	1704602	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	

**Notes:**

Column headers are defined as follows:

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

# GEL LABORATORIES LLC

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

## QC Summary

Report Date: October 3, 2017

Page 1 of 2

GEL Engineering, LLC  
2040 Savage Rd  
Charleston, South Carolina

Contact: Robert Gardner

Workorder: 433625

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Ion Chromatography</b>											
Batch	1704602										
QC1203884646	433625001	DUP									
Chloride		8.52		8.49	mg/L	0.402		(0%-20%)	MAR1	09/28/17	14:15
Fluoride	U	ND	U	ND	mg/L	N/A					
QC1203884645	LCS										
Chloride	5.00			4.57	mg/L		91.4	(90%-110%)		09/28/17	13:17
Fluoride	2.50			2.40	mg/L		96.1	(90%-110%)			
QC1203884644	MB										
Chloride			U	ND	mg/L					09/28/17	12:48
Fluoride			U	ND	mg/L						
QC1203884647	433625001	PS									
Chloride	5.00	8.52		14.1	mg/L		112 *	(90%-110%)		09/28/17	14:44
Fluoride	2.50	U	ND	2.58	mg/L		103	(90%-110%)			

- Notes:**
- The Qualifiers in this report are defined as follows:
- < Result is less than value reported
  - > Result is greater than value reported
  - B The target analyte was detected in the associated blank.
  - E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
  - H Analytical holding time was exceeded
  - J Value is estimated
  - N/A RPD or %Recovery limits do not apply.
  - NI See case narrative
  - ND Analyte concentration is not detected above the detection limit

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 433625

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
NJ											
Q											
R											
R											
U											
X											
Z											
^											
d											
e											
h											

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.





Central Laboratory (P-08)  
2102 North Lake Drive  
Columbia, SC 29212  
Tel: (803)217-9384  
Fax: (803) 217-9911

September 28, 2017

REPORT TO:
Mike Moore

Sample ID: **AB28747**

**Cope Well LF-1 CCR**

Date & Time Sampled: September 25, 2017 13:29

Date & Time Submitted: September 26, 2017 12:35

Collected by: C.SANDEL

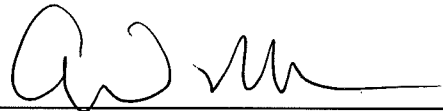
Location Code: COLF1TDS

LF-1

Login Record File: 170926006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	9.06	0.50	mg/L	9/27/17 14:09	BB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	5.94	0.00	S.U.	9/27/17 09:00	BF
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	9/27/17 14:09	BB
Total Dissolved Solid-SM2540C	32	2.0	mg/L	9/28/17 15:14	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 28, 2017

REPORT TO:
Mike Moore

Sample ID: **AB28748**

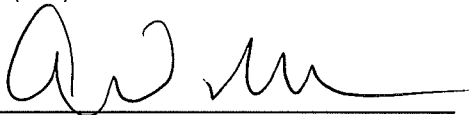
**Cope Well Field Blank CCR**

Date & Time Sampled: September 25, 2017 13:15  
 Date & Time Submitted: September 26, 2017 12:35  
 Collected by: C.SANDEL Location Code: COFBTDS

Login Record File: 170926006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	Less than	0.50	mg/L	9/27/17 14:09	BB
pH by SM4500HB(2011)	6.59	0.00	S.U.	9/27/17 09:00	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	9/27/17 14:09	BB
Total Dissolved Solid-SM2540C	4	2.0	mg/L	9/28/17 15:14	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 28, 2017

REPORT TO:
Mike Moore

Sample ID: **AB28749**  
**Cope Well LF-2 CCR**

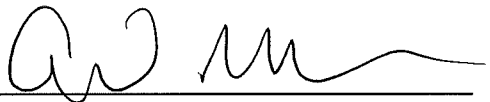
Date & Time Sampled: September 25, 2017 14:05  
 Date & Time Submitted: September 26, 2017 12:35  
 Collected by: C.SANDEL Location Code: COLF2TDS

LF-2

Login Record File: 170926006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	24.0	0.50	mg/L	9/27/17 14:09	BB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.47	0.00	S.U.	9/27/17 09:00	BF
Sulfates by IC EPA 300.0	2.8	0.50	mg/L	9/27/17 14:09	BB
Total Dissolved Solid-SM2540C	61	2.0	mg/L	9/28/17 15:14	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
2102 North Lake Drive  
Columbia, SC 29212  
Tel: (803)217-9384  
Fax: (803) 217-9911

September 28, 2017

REPORT TO:
Mike Moore

Sample ID: **AB28750**

**Cope Well Duplicate CCR**

Date & Time Sampled: September 25, 2017 14:15

Date & Time Submitted: September 26, 2017 12:35

Collected by: C.SANDEL Location Code: CODUPTDS

Login Record File: 170926006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	26.3	0.50	mg/L	9/27/17 14:09	BB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.60	0.00	S.U.	9/27/17 09:00	BF
Sulfates by IC EPA 300.0	2.3	0.50	mg/L	9/27/17 14:09	BB
Total Dissolved Solid-SM2540C	63	2.0	mg/L	9/28/17 15:14	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 28, 2017

REPORT TO:
Mike Moore

Sample ID: **AB28751**  
**Cope Well LF-3 CCR**

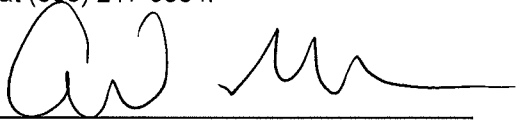
Date & Time Sampled: September 25, 2017 15:00  
 Date & Time Submitted: September 26, 2017 12:35  
 Collected by: C.SANDEL Location Code: COLF3TDS

LF-3

Login Record File: 170926006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	3.42	0.50	mg/L	9/27/17 14:09	BB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	5.24	0.00	S.U.	9/27/17 09:00	BF
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	9/27/17 14:09	BB
Total Dissolved Solid-SM2540C	19	2.0	mg/L	9/28/17 15:14	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
2102 North Lake Drive  
Columbia, SC 29212  
Tel: (803)217-9384  
Fax: (803) 217-9911

September 28, 2017

<b>REPORT TO:</b>
Mike Moore

Sample ID: **AB28752**  
**Cope Well LF-4 CCR**

Date & Time Sampled: September 25, 2017 15:44  
Date & Time Submitted: September 26, 2017 12:35  
Collected by: C.SANDEL Location Code: COLF4TDS

LF-4

Login Record File: 170926006

<b>CERTIFIED BY SCDHEC (LAB ID 32006):</b>	<b>Result</b>	<b>Reporting Limit(MRL)</b>	<b>Units</b>	<b>Completed Analysis Date &amp; Time</b>	<b>Chemist</b>
Chlorides by IC EPA 300.0	4.78	0.50	mg/L	9/27/17 14:09	BB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.84	0.00	S.U.	9/27/17 09:00	BF
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	9/27/17 14:09	BB
Total Dissolved Solid-SM2540C	31	2.0	mg/L	9/28/17 15:14	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 28, 2017

REPORT TO:
Mike Moore

Sample ID: **AB28753**  
**Cope Well LF-5 CCR**

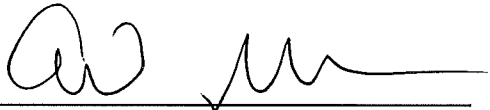
Date & Time Sampled: September 25, 2017 16:27  
 Date & Time Submitted: September 26, 2017 12:35  
 Collected by: C.SANDEL Location Code: COLF5TDS

LF-5

Login Record File: 170926006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	7.24	0.50	mg/L	9/27/17 14:09	BB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.80	0.00	S.U.	9/27/17 09:00	BF
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	9/27/17 14:09	BB
Total Dissolved Solid-SM2540C	34	2.0	mg/L	9/28/17 15:14	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 28, 2017

REPORT TO:
Mike Moore

Sample ID: **AB28754**  
**Cope Well LF-6 CCR**

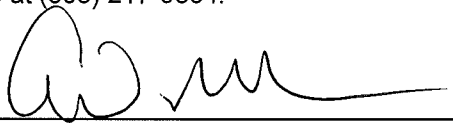
Date & Time Sampled: September 26, 2017 08:13  
 Date & Time Submitted: September 26, 2017 12:35  
 Collected by: C.SANDEL Location Code: COLF6TDS

LF-6

Login Record File: 170926006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	7.31	0.50	mg/L	9/27/17 14:09	BB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.90	0.00	S.U.	9/27/17 09:00	BF
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	9/27/17 14:09	BB
Total Dissolved Solid-SM2540C	34	2.0	mg/L	9/28/17 15:14	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 





Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 28, 2017

REPORT TO:
Mike Moore

Sample ID: **AB28755**

**Cope GW Well MW-16 TDS (RCRA)**

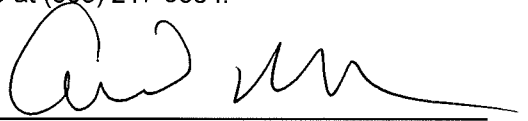
Date & Time Sampled: September 26, 2017 09:22  
 Date & Time Submitted: September 26, 2017 12:35  
 Collected by: C.SANDEL Location Code: COG16TDS

MW-16

Login Record File: 170926006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	3.81	0.50	mg/L	9/27/17 14:09	BB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	5.13	0.00	S.U.	9/27/17 09:00	BF
Sulfates by IC EPA 300.0	0.79	0.50	mg/L	9/27/17 14:09	BB
Total Dissolved Solid-SM2540C	31	2.0	mg/L	9/28/17 15:14	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 28, 2017

REPORT TO:
Mike Moore

Sample ID: **AB28756**

**Cope GW Well MW-6 TDS - RCRA**

Date & Time Sampled: September 26, 2017 10:23  
 Date & Time Submitted: September 26, 2017 12:35  
 Collected by: C.SANDEL Location Code: COG06TDS

MW-06

Login Record File: 170926006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	18.3	0.50	mg/L	9/27/17 14:09	BB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.54	0.00	S.U.	9/27/17 09:00	BF
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	9/27/17 14:09	BB
Total Dissolved Solid-SM2540C	109	2.0	mg/L	9/28/17 15:14	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: \_\_\_\_\_



Central Laboratory (P-08)  
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 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 27, 2017

REPORT TO:
Mike Moore

Sample ID: **AB28757**

**Cope Well LF-1 T Metal CCR**

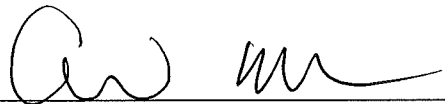
Date & Time Sampled: September 25, 2017 13:29  
 Date & Time Submitted: September 26, 2017 12:35  
 Collected by: C.SANDEL Location Code: COLF1TM

LF-1

Login Record File: 170926006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Boron - EPA 200.7	Less than	1000	ppb	9/27/17 11:49	CDB
Calcium EPA 200.7	1818	1000	ppb	9/27/17 11:49	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
2102 North Lake Drive  
Columbia, SC 29212  
Tel: (803)217-9384  
Fax: (803) 217-9911

September 27, 2017

<b>REPORT TO:</b>
Mike Moore

Sample ID: **AB28758**

**Cope Well Field Blank T Metal CCR**

Date & Time Sampled: September 25, 2017 13:15  
Date & Time Submitted: September 26, 2017 12:35  
Collected by: C.SANDEL Location Code: COFBTM

Login Record File: 170926006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Boron - EPA 200.7	Less than	1000	ppb	9/27/17 11:49	CDB
Calcium EPA 200.7	Less than	100	ppb	9/27/17 11:49	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
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 Tel: (803)217-9384  
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September 27, 2017

REPORT TO:
Mike Moore

Sample ID: **AB28759**

**Cope Well LF-2 T Metal CCR**

Date & Time Sampled: September 25, 2017 14:05  
 Date & Time Submitted: September 26, 2017 12:35  
 Collected by: C.SANDEL Location Code: COLF2TM

LF-2

Login Record File: 170926006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Boron - EPA 200.7	Less than	1000	ppb	9/27/17 11:49	CDB
Calcium EPA 200.7	3344	1000	ppb	9/27/17 11:49	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
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Columbia, SC 29212  
Tel: (803)217-9384  
Fax: (803) 217-9911

September 27, 2017

<b>REPORT TO:</b>
Mike Moore

Sample ID: **AB28760**

**Cope Well Duplicate T Metal CCR**

Date & Time Sampled: September 25, 2017 14:15  
Date & Time Submitted: September 26, 2017 12:35  
Collected by: C.SANDEL Location Code: CODUPTM

Login Record File: 170926006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Boron - EPA 200.7	Less than	1000	ppb	9/27/17 11:49	CDB
Calcium EPA 200.7	3355	1000	ppb	9/27/17 11:49	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
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 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 27, 2017

REPORT TO:
Mike Moore

Sample ID: **AB28761**

**Cope Well LF-3 T Metal CCR**

Date & Time Sampled: September 25, 2017 15:00  
 Date & Time Submitted: September 26, 2017 12:35  
 Collected by: C.SANDEL Location Code: COLF3TM

LF-3

Login Record File: 170926006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Boron - EPA 200.7	Less than	1000	ppb	9/27/17 11:49	CDB
Calcium EPA 200.7	724	100	ppb	9/27/17 11:49	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

September 27, 2017

REPORT TO:
Mike Moore

Sample ID: **AB28762**  
**Cope Well LF-4 T Metal CCR**

Date & Time Sampled: September 25, 2017 15:44  
 Date & Time Submitted: September 26, 2017 12:35  
 Collected by: C.SANDEL Location Code: COLF4TM

LF-4

Login Record File: 170926006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Boron - EPA 200.7	Less than	1000	ppb	9/27/17 11:49	CDB
Calcium EPA 200.7	1576	1000	ppb	9/27/17 11:49	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 





Central Laboratory (P-08)  
2102 North Lake Drive  
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Tel: (803)217-9384  
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September 27, 2017

REPORT TO:
Mike Moore

Sample ID: **AB28763**

**Cope Well LF-5 T Metal CCR**

Date & Time Sampled: September 25, 2017 16:27

Date & Time Submitted: September 26, 2017 12:35

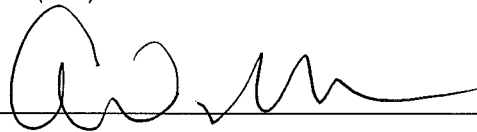
Collected by: C.SANDEL Location Code: COLF5TM

LF-5

Login Record File: 170926006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Boron - EPA 200.7	Less than	1000	ppb	9/27/17 11:49	CDB
Calcium EPA 200.7	2334	1000	ppb	9/27/17 11:49	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
2102 North Lake Drive  
Columbia, SC 29212  
Tel: (803)217-9384  
Fax: (803) 217-9911

September 27, 2017

<b>REPORT TO:</b>
Mike Moore

Sample ID: **AB28764**

**Cope Well LF-6 T Metal CCR**

Date & Time Sampled: September 26, 2017 08:13

Date & Time Submitted: September 26, 2017 12:35

Collected by: C.SANDEL Location Code: COLF6TM

LF-6

Login Record File: 170926006

<b>CERTIFIED BY SCDHEC (LAB ID 32006):</b>	<b>Result</b>	<b>Reporting Limit(MRL)</b>	<b>Units</b>	<b>Completed Analysis Date &amp; Time</b>	<b>Chemist</b>
Boron - EPA 200.7	Less than	1000	ppb	9/27/17 11:49	CDB
Calcium EPA 200.7	2229	1000	ppb	9/27/17 11:49	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
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 Columbia, SC 29212  
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 Fax: (803) 217-9911

September 27, 2017

REPORT TO:
Mike Moore

Sample ID: **AB28765**

**Cope GW Well MW-16 Tota1 Metal (RCRA)**

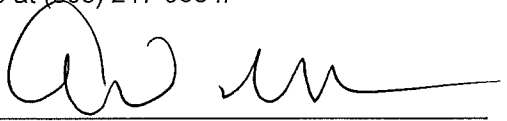
Date & Time Sampled: September 26, 2017 09:22  
 Date & Time Submitted: September 26, 2017 12:35  
 Collected by: C.SANDEL Location Code: COG16TM

MW-16

Login Record File: 170926006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Boron - EPA 200.7	Less than	1000	ppb	9/27/17 11:49	CDB
Calcium EPA 200.7	2145	1000	ppb	9/27/17 11:49	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



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September 27, 2017

REPORT TO:
Mike Moore

Sample ID: **AB28766**

**Cope GW Well MW-6 Tota1 Metal (RCRA)**

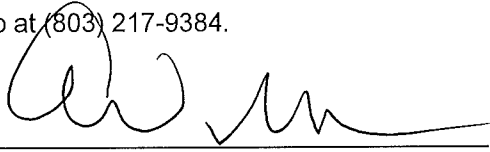
Date & Time Sampled: September 26, 2017 10:23  
 Date & Time Submitted: September 26, 2017 12:35  
 Collected by: C.SANDEL Location Code: COG06TM

MW-06

Login Record File: 170926006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Boron - EPA 200.7	Less than	1000	ppb	9/27/17 11:49	CDB
Calcium EPA 200.7	9973	1000	ppb	9/27/17 11:49	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 

**Cope Station Class Three Landfill  
EPA CCR Rule Compliance Monitoring Wells  
Groundwater Monitoring Data  
South Carolina Electric & Gas**

Gauging Date 10/12/17											
Monitoring Well ID	PVC Pipe Elevation, ft.	Initial Gauging		Final Gauging		Final Water Quality Indicator Parameters					
		Depth to Groundwater, ft.	Groundwater Elevation, ft.	Depth to Groundwater, ft.	Groundwater Elevation, ft.	Temperature °C	pH S.U.	Sp. Cond. µS/cm	Turbidity NTU	ORP mV	DO mg/L
MW-LF-01	176.41	10.47	165.94	10.7	165.67	24.9	4.6	44	6.95	193	4.47
MW-LF-02	190.08	27.73	162.35	28.04	162.04	23.3	4.2	122	5.78	270	1.5
MW-LF-03	187.19	26.24	160.95	27.44	159.75	24.4	4.4	31	6.42	228	1.91
MW-LF-04	184.20	25.81	158.39	25.89	158.31	23.9	4.4	44	6.45	227	4.48
MW-LF-05	177.95	22.10	155.85	22.14	155.81	24.6	4.4	61	5.16	224	61
MW-LF-06	178.57	21.38	157.19	21.41	157.16	25.5	4.4	56	5.13	216	4.76
MW-BG-06	187.95	16.68	171.27	16.75	171.20	20.1	4.1	176	5.82	229	5.17
MW-BG-16	182.52	11.68	170.84	11.77	170.75	20.4	4.5	48	5.64	210	6.13



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October 19, 2017

<b>REPORT TO:</b>
Mike Moore

Sample ID: **AB29162**  
**Cope Well LF-1 CCR**

Date & Time Sampled: October 12, 2017 08:08  
 Date & Time Submitted: October 12, 2017 14:48  
 Collected by: C.SANDEL Location Code: COLF1TDS

LF-1

Login Record File: 171012006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	8.42	0.50	mg/L	10/16/17 09:00	BB
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	10/16/17 09:00	BB
Total Alkalinity by SM2320B	Less than	1.0	mg/L	10/16/17 13:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

October 19, 2017

REPORT TO:
Mike Moore

Sample ID: **AB29163**  
**Cope Well LF-2 CCR**

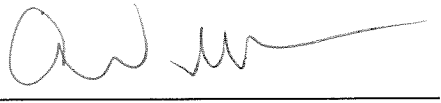
Date & Time Sampled: October 12, 2017 08:56  
 Date & Time Submitted: October 12, 2017 14:48  
 Collected by: C.SANDEL Location Code: COLF2TDS

LF-2

Login Record File: 171012006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	25.1	0.50	mg/L	10/16/17 09:00	BB
Sulfates by IC EPA 300.0	2.50	0.50	mg/L	10/16/17 09:00	BB
Total Alkalinity by SM2320B	Less than	1.0	mg/L	10/16/17 13:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
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 Fax: (803) 217-9911

October 19, 2017

REPORT TO:
Mike Moore

Sample ID: **AB29164**

**Cope Well LF-3 CCR**

Date & Time Sampled: October 12, 2017 09:43

Date & Time Submitted: October 12, 2017 14:48

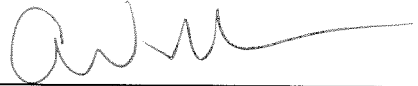
Collected by: C.SANDEL Location Code: COLF3TDS

LF-3

Login Record File: 171012006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	3.82	0.50	mg/L	10/16/17 09:00	BB
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	10/16/17 09:00	BB
Total Alkalinity by SM2320B	1.98	1.0	mg/L	10/16/17 13:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 





Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
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October 19, 2017

REPORT TO:
Mike Moore

Sample ID: **AB29165**

**Cope Well LF-4 CCR**

Date & Time Sampled: October 12, 2017 10:51  
 Date & Time Submitted: October 12, 2017 14:48  
 Collected by: C.SANDEL Location Code: COLF4TDS

LF-4

Login Record File: 171012006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	4.69	0.50	mg/L	10/16/17 09:00	BB
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	10/16/17 09:00	BB
Total Alkalinity by SM2320B	Less than	1.0	mg/L	10/16/17 13:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
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 Tel: (803)217-9384  
 Fax: (803) 217-9911

October 19, 2017

REPORT TO:
Mike Moore

Sample ID: **AB29166**  
**Cope Well LF-5 CCR**

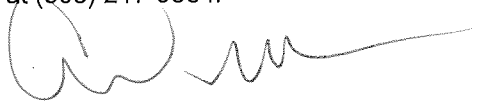
Date & Time Sampled: October 12, 2017 11:48  
 Date & Time Submitted: October 12, 2017 14:48  
 Collected by: C.SANDEL Location Code: COLF5TDS

LF-5

Login Record File: 171012006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	7.45	0.50	mg/L	10/16/17 09:00	BB
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	10/16/17 09:00	BB
Total Alkalinity by SM2320B	Less than	1.0	mg/L	10/16/17 13:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
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 Fax: (803) 217-9911

October 19, 2017

REPORT TO:
Mike Moore

Sample ID: **AB29167**  
**Cope Well LF-6 CCR**

Date & Time Sampled: October 12, 2017 12:50  
 Date & Time Submitted: October 12, 2017 14:48  
 Collected by: C.SANDEL Location Code: COLF6TDS

LF-6

Login Record File: 171012006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	7.36	0.50	mg/L	10/16/17 09:00	BB
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	10/16/17 09:00	BB
Total Alkalinity by SM2320B	Less than	1.0	mg/L	10/16/17 13:00	BF

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

October 19, 2017

REPORT TO:
Mike Moore Rocky Archer

Sample ID: **AB29018**

**Cope GW Well MW-6 TDS - RCRA**

Date & Time Sampled: October 10, 2017 08:58  
 Date & Time Submitted: October 10, 2017 15:12  
 Collected by: C.SANDEL Location Code: COG06TDS

MW-06

Login Record File: 171010003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	17.8	0.50	mg/L	10/11/17 12:22	BB
Nitrate-N by IC - 9056A	12.1	0.11	mg/L as N	10/11/17 12:22	BB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	4.54	0.00	S.U.	10/11/17 13:00	BF
Sulfates by IC - 9056A	Less than	0.5	mg/L	10/11/17 12:22	BB
Total Alkalinity by SM2320B	Less than	1.0	mg/L	10/16/17 13:00	BF
Total Dissolved Solid-SM2540C	88	2.0	mg/L	10/12/17 15:00	BF

NON-CERTIFIED PARAMETERS:	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Fluoride by IC EPA 300.0	Less than	0.50	mg/L	10/11/17 12:22	BB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
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 Fax: (803) 217-9911

October 19, 2017

REPORT TO:
Mike Moore Rocky Archer

Sample ID: **AB29019**

**Cope GW Well MW-16 TDS (RCRA)**

Date & Time Sampled: October 10, 2017 09:44  
 Date & Time Submitted: October 10, 2017 15:12  
 Collected by: C.SANDEL Location Code: COG16TDS

MW-16

Login Record File: 171010003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC- 9056A	3.76	0.50	mg/L	10/11/17 12:22	BB
Nitrate-N by IC - 9056A	2.59	0.11	mg/L as N	10/11/17 12:22	BB
pH by SM4500HB(2011) Holding Time of 15 minutes has been exceeded.	5.00	0.00	S.U.	10/11/17 13:00	BF
Sulfates by IC - 9056A	0.82	0.5	mg/L	10/11/17 12:22	BB
Total Alkalinity by SM2320B	2.48	1.0	mg/L	10/16/17 13:00	BF
Total Dissolved Solid-SM2540C	27	2.0	mg/L	10/12/17 15:00	BF

NON-CERTIFIED PARAMETERS:	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Fluoride by IC EPA 300.0	Less than	0.50	mg/L	10/11/17 12:22	BB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

October 16, 2017

<b>REPORT TO:</b>
Mike Moore

Sample ID: **AB29168**

**Cope Well LF-1 T Metal CCR**

Date & Time Sampled: October 12, 2017 08:08  
 Date & Time Submitted: October 12, 2017 14:48  
 Collected by: C.SANDEL Location Code: COLF1TM

LF-1

Login Record File: 171012006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Calcium EPA 200.7	1830	100	ppb	10/16/17 09:19	CDB
Magnesium EPA 200.7	911	100	ppb	10/16/17 09:19	CDB
Potassium EPA 200.7	Less than	1000	ppb	10/16/17 09:19	CDB
Sodium EPA 200.7	3250	1000	ppb	10/16/17 09:19	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

October 16, 2017

REPORT TO:
Mike Moore

Sample ID: **AB29169**

**Cope Well LF-2 T Metal CCR**

Date & Time Sampled: October 12, 2017 08:56  
 Date & Time Submitted: October 12, 2017 14:48  
 Collected by: C.SANDEL Location Code: COLF2TM

LF-2

Login Record File: 171012006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Calcium EPA 200.7	3280	100	ppb	10/16/17 09:19	CDB
Magnesium EPA 200.7	2820	100	ppb	10/16/17 09:19	CDB
Potassium EPA 200.7	3480	1000	ppb	10/16/17 09:19	CDB
Sodium EPA 200.7	7570	1000	ppb	10/16/17 09:19	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

October 16, 2017

REPORT TO:
Mike Moore

Sample ID: **AB29170**

**Cope Well LF-3 T Metal CCR**

Date & Time Sampled: October 12, 2017 09:43  
 Date & Time Submitted: October 12, 2017 14:48  
 Collected by: C.SANDEL Location Code: COLF3TM

LF-3

Login Record File: 171012006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Calcium EPA 200.7	742	100	ppb	10/16/17 09:19	CDB
Magnesium EPA 200.7	534	100	ppb	10/16/17 09:19	CDB
Potassium EPA 200.7	Less than	1000	ppb	10/16/17 09:19	CDB
Sodium EPA 200.7	1140	1000	ppb	10/16/17 09:19	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 





Central Laboratory (P-08)  
 2102 North Lake Drive  
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October 16, 2017

REPORT TO:
Mike Moore

Sample ID: **AB29171**

**Cope Well LF-4 T Metal CCR**

Date & Time Sampled: October 12, 2017 10:51  
 Date & Time Submitted: October 12, 2017 14:48  
 Collected by: C.SANDEL Location Code: COLF4TM

LF-4

Login Record File: 171012006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Calcium EPA 200.7	1600	100	ppb	10/16/17 09:19	CDB
Magnesium EPA 200.7	1490	100	ppb	10/16/17 09:19	CDB
Potassium EPA 200.7	Less than	1000	ppb	10/16/17 09:19	CDB
Sodium EPA 200.7	1670	1000	ppb	10/16/17 09:19	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

October 16, 2017

REPORT TO:
Mike Moore

Sample ID: **AB29172**

**Cope Well LF-5 T Metal CCR**

Date & Time Sampled: October 12, 2017 11:48  
 Date & Time Submitted: October 12, 2017 14:48  
 Collected by: C.SANDEL Location Code: COLF5TM

LF-5

Login Record File: 171012006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Calcium EPA 200.7	2350	100	ppb	10/16/17 09:29	CDB
Magnesium EPA 200.7	1870	100	ppb	10/16/17 09:29	CDB
Potassium EPA 200.7	Less than	1000	ppb	10/16/17 09:29	CDB
Sodium EPA 200.7	2830	1000	ppb	10/16/17 09:29	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

October 16, 2017

REPORT TO:
Mike Moore

Sample ID: **AB29173**

**Cope Well LF-6 T Metal CCR**

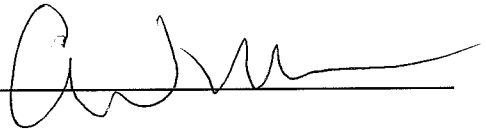
Date & Time Sampled: October 12, 2017 12:50  
 Date & Time Submitted: October 12, 2017 14:48  
 Collected by: C.SANDEL Location Code: COLF6TM

LF-6

Login Record File: 171012006

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Calcium EPA 200.7	2180	100	ppb	10/16/17 09:29	CDB
Magnesium EPA 200.7	1690	100	ppb	10/16/17 09:29	CDB
Potassium EPA 200.7	Less than	1000	ppb	10/16/17 09:29	CDB
Sodium EPA 200.7	2780	1000	ppb	10/16/17 09:29	CDB

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
 Tel: (803)217-9384  
 Fax: (803) 217-9911

October 23, 2017

REPORT TO:
Mike Moore Rocky Archer

Sample ID: **AB29026**

**Cope GW Well MW-6 Tota1 Metal (RCRA)**

Date & Time Sampled: October 10, 2017 08:58  
 Date & Time Submitted: October 10, 2017 15:12  
 Collected by: C.SANDEL Location Code: COG06TM

MW-06

Login Record File: 171010003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony - 6020B (RCRA)	Less than	5.0	ppb	10/16/17 08:15	MC
Arsenic by ICP-MS 6020B	Less than	5.0	ppb	10/16/17 08:15	MC
Barium - 6010D (RCRA)	109	10.0	ppb	10/12/17 14:43	MC
Beryllium - 6010D (RCRA)	Less than	2.0	ppb	10/12/17 14:43	MC
Boron - 6010D (RCRA)	Less than	1000	ppb	10/12/17 14:43	MC
Cadmium by ICP-OES 6010D	Less than	2.0	ppb	10/12/17 14:43	MC
Calcium - 6010D (RCRA)	10300	100	ppb	10/12/17 14:43	MC
Chromium - 6010D (RCRA)	Less than	5.0	ppb	10/12/17 14:43	MC
Cobalt - 6010D (RCRA)	Less than	5.0	ppb	10/12/17 14:43	MC
Copper - 6010D (RCRA)	Less than	10.0	ppb	10/12/17 14:43	MC
Iron - 6010D (RCRA)	Less than	20.0	ppb	10/12/17 14:43	MC
Lead - 6010D (RCRA)	Less than	10.0	ppb	10/12/17 14:43	MC
Magnesium - 6010D (RCRA)	8470	100	ppb	10/12/17 14:43	MC
Mercury - 7470A (RCRA)	Less than	0.2	ppb	10/20/17 14:01	PRC
Molybdenum - 6010D	Less than	10.0	ppb	10/12/17 14:43	MC
Nickel - 6010D (RCRA)	Less than	10.0	ppb	10/12/17 14:43	MC
Potassium - 6010D (RCRA)	1250	1000	ppb	10/12/17 14:43	MC
Selenium - 6010D (RCRA)	Less than	20.0	ppb	10/12/17 14:43	MC
Sodium - 6010D (RCRA)	3340	1000	ppb	10/12/17 14:43	MC

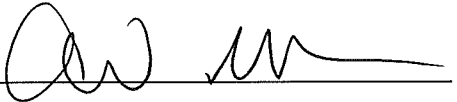


Sample ID: AB29026

October 23, 2017

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Zinc - 6010D (RCRA)	Less than	10.0	ppb	10/12/17 14:43	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



Central Laboratory (P-08)  
 2102 North Lake Drive  
 Columbia, SC 29212  
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 Fax: (803) 217-9911

October 23, 2017

REPORT TO:
Mike Moore Rocky Archer

Sample ID: **AB29027**

**Cope GW Well MW-16 Total Metal (RCRA)**

Date & Time Sampled: October 10, 2017 09:44  
 Date & Time Submitted: October 10, 2017 15:12  
 Collected by: C.SANDEL Location Code: COG16TM

MW-16

Login Record File: 171010003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Antimony - 6020B (RCRA)	Less than	5.0	ppb	10/16/17 08:15	MC
Arsenic by ICP-MS 6020B	Less than	5.0	ppb	10/16/17 08:15	MC
Barium - 6010D (RCRA)	13.2	10.0	ppb	10/12/17 14:43	MC
Beryllium - 6010D (RCRA)	Less than	2.0	ppb	10/12/17 14:43	MC
Boron - 6010D (RCRA)	Less than	1000	ppb	10/12/17 14:43	MC
Cadmium by ICP-OES 6010D	Less than	2.0	ppb	10/12/17 14:43	MC
Calcium - 6010D (RCRA)	2360	100	ppb	10/12/17 14:43	MC
Chromium - 6010D (RCRA)	Less than	5.0	ppb	10/12/17 14:43	MC
Cobalt - 6010D (RCRA)	Less than	5.0	ppb	10/12/17 14:43	MC
Copper - 6010D (RCRA)	Less than	10.0	ppb	10/12/17 14:43	MC
Iron - 6010D (RCRA)	Less than	20.0	ppb	10/12/17 14:43	MC
Lead - 6010D (RCRA)	Less than	10.0	ppb	10/12/17 14:43	MC
Magnesium - 6010D (RCRA)	1480	100	ppb	10/12/17 14:43	MC
Mercury - 7470A (RCRA)	Less than	0.2	ppb	10/20/17 14:01	PRC
Molybdenum - 6010D	Less than	10.0	ppb	10/12/17 14:43	MC
Nickel - 6010D (RCRA)	Less than	10.0	ppb	10/12/17 14:43	MC
Potassium - 6010D (RCRA)	1390	1000	ppb	10/12/17 14:43	MC
Selenium - 6010D (RCRA)	Less than	20.0	ppb	10/12/17 14:43	MC
Sodium - 6010D (RCRA)	1580	1000	ppb	10/12/17 14:43	MC



Sample ID: AB29027

October 23, 2017

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Zinc - 6010D (RCRA)	Less than	10.0	ppb	10/12/17 14:43	MC

If there are any questions concerning this sample, please contact the lab at (803) 217-9384.

Approved By: 



## **APPENDIX B**

### **Statistical Analysis of Detection Monitoring Groundwater Quality Results**



**Cope Station**  
**Detection Monitoring Summary**

Run Id: 1

Location Id: MW-LF-02

Compliance Test: Double Quantification Rule

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Boron, total mg/L	07/27/2017	AB28019	--	--	< 1.000	n		--
Boron, total mg/L	09/25/2017	AB28759	--	--	< 1.000	n		--

Run Id: 2

Location Id: MW-LF-02

Compliance Test: Non-Parametric Prediction Interval on Background Using largest background data value.

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Calcium, Total mg/L	07/27/2017	AB28019	1 of 2	10.600	3.350	n		--
Calcium, Total mg/L	09/25/2017	AB28759	1 of 2	10.600	3.344	n		--
Calcium, Total mg/L	10/12/2017	SCANA_MW_LF_(	1 of 2	10.600	3.280	n		--

Run Id: 3

Location Id: MW-LF-02

Compliance Test: Parametric Prediction Interval on Background

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Chloride, tot mg/L	07/28/2017	AB28018	1 of 2	23.43	28.42	y		Downward
Chloride, tot mg/L	09/25/2017	AB28749	1 of 2	23.43	24.00	y		Downward
Chloride, tot mg/L	10/12/2017	SCANA_MW_LF_(	1 of 2	23.43	25.10	y		Downward

NOTE: If trend test is performed, the background slope is listed under the Upper Limit heading and the compliance slope is listed under the Compliance Result heading.

### Detection Monitoring Summary

Run Id: 4

Location Id: MW-LF-02

Compliance Test: Parametric Prediction Interval on Background

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Field pH S.U.	07/28/2017	FLD20170727	1 of 2	5.372	4.000	n/n		--
Field pH S.U.	09/25/2017	FLD20170925	1 of 2	5.372	4.300	n/n		--

Run Id: 5

Location Id: MW-LF-02

Compliance Test: Non-Parametric Prediction Interval on Background Using largest background data value.

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Fluoride, total mg/L	07/27/2017	429194003	1 of 2	0.140	0.124	n		--
Fluoride, total mg/L	09/25/2017	433625003	1 of 2	0.140	0.104	n		--

Run Id: 6

Location Id: MW-LF-02

Compliance Test: Non-Parametric Prediction Interval on Background Using largest background data value.

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Sulfate, tot mg/L	07/27/2017	AB28018	1 of 2	2.720	2.620	n		--
Sulfate, tot mg/L	09/25/2017	AB28749	1 of 2	2.720	2.800	y		None
Sulfate, tot mg/L	10/12/2017	SCANA_MW_LF_(	1 of 2	2.720	2.500	n		--

Run Id: 7

Location Id: MW-LF-02

NOTE: If trend test is performed, the background slope is listed under the Upper Limit heading and the compliance slope is listed under the Compliance Result heading.

## Detection Monitoring Summary

Run Id: 7**Location Id:** MW-LF-02**Compliance Test:** Parametric Prediction Interval on Background

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Total Dissolved Solids mg/L	07/28/2017	AB28018	1 of 2	135.412	82.000	n		--
Total Dissolved Solids mg/L	09/25/2017	AB28749	1 of 2	135.412	61.000	n		--

Run Id: 8**Location Id:** MW-LF-03**Compliance Test:** Double Quantification Rule

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Boron, total mg/L	07/27/2017	AB28021	--	--	< 1.000	n		--
Boron, total mg/L	09/25/2017	AB28761	--	--	< 1.000	n		--

Run Id: 9**Location Id:** MW-LF-03**Compliance Test:** Non-Parametric Prediction Interval on Background Using largest background data value.

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Calcium, Total mg/L	07/27/2017	AB28021	1 of 2	10.600	0.823	n		--
Calcium, Total mg/L	09/25/2017	AB28761	1 of 2	10.600	0.724	n		--

Run Id: 10**Location Id:** MW-LF-03

NOTE: If trend test is performed, the background slope is listed under the Upper Limit heading and the compliance slope is listed under the Compliance Result heading.

## Detection Monitoring Summary

Run Id: 10**Location Id:** MW-LF-03**Compliance Test:** Parametric Prediction Interval on Background

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Chloride, tot mg/L	07/28/2017	AB28020	1 of 2	23.43	3.44	n		--
Chloride, tot mg/L	09/25/2017	AB28751	1 of 2	23.43	3.42	n		--

Run Id: 11**Location Id:** MW-LF-03**Compliance Test:** Parametric Prediction Interval on Background

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Field pH S.U.	07/28/2017	FLD20170727	1 of 2	5.372	4.200	n/n		--
Field pH S.U.	09/25/2017	FLD20170925	1 of 2	5.372	4.400	n/n		--

Run Id: 12**Location Id:** MW-LF-03**Compliance Test:** Non-Parametric Prediction Interval on Background Using largest background data value.

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Fluoride, total mg/L	07/27/2017	429194004	1 of 2	0.140	< 0.100	n		--
Fluoride, total mg/L	09/25/2017	433625005	1 of 2	0.140	< 0.100	n		--

Run Id: 13**Location Id:** MW-LF-03

NOTE: If trend test is performed, the background slope is listed under the Upper Limit heading and the compliance slope is listed under the Compliance Result heading.

## Detection Monitoring Summary

Run Id: 13**Location Id:** MW-LF-03**Compliance Test:** Non-Parametric Prediction Interval on Background Useing largest background data value.

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Sulfate, tot mg/L	07/27/2017	AB28020	1 of 2	2.720	< 0.500	n		--
Sulfate, tot mg/L	09/25/2017	AB28751	1 of 2	2.720	< 0.500	n		--

Run Id: 14**Location Id:** MW-LF-03**Compliance Test:** Parametric Prediction Interval on Background

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Total Dissolved Solids mg/L	07/28/2017	AB28020	1 of 2	135.412	29.000	n		--
Total Dissolved Solids mg/L	09/25/2017	AB28751	1 of 2	135.412	19.000	n		--

Run Id: 15**Location Id:** MW-LF-04**Compliance Test:** Double Quantification Rule

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Boron, total mg/L	07/27/2017	AB28023	--	--	< 1.000	n		--
Boron, total mg/L	09/25/2017	AB28762	--	--	< 1.000	n		--

Run Id: 16**Location Id:** MW-LF-04

NOTE: If trend test is performed, the background slope is listed under the Upper Limit heading and the compliance slope is listed under the Compliance Result heading.

## Detection Monitoring Summary

Run Id: 16**Location Id:** MW-LF-04**Compliance Test:** Non-Parametric Prediction Interval on Background Useing largest background data value.

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Calcium, Total mg/L	07/27/2017	AB28023	1 of 2	10.600	1.100	n		--
Calcium, Total mg/L	09/25/2017	AB28762	1 of 2	10.600	1.576	n		--

Run Id: 17**Location Id:** MW-LF-04**Compliance Test:** Parametric Prediction Interval on Background

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Chloride, tot mg/L	07/28/2017	AB28022	1 of 2	23.43	3.74	n		--
Chloride, tot mg/L	09/25/2017	AB28752	1 of 2	23.43	4.78	n		--

Run Id: 18**Location Id:** MW-LF-04**Compliance Test:** Parametric Prediction Interval on Background

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Field pH S.U.	07/28/2017	FLD20170727	1 of 2	5.372	4.300	n/n		--
Field pH S.U.	09/25/2017	FLD20170925	1 of 2	5.372	4.300	n/n		--

Run Id: 19**Location Id:** MW-LF-04

NOTE: If trend test is performed, the background slope is listed under the Upper Limit heading and the compliance slope is listed under the Compliance Result heading.

## Detection Monitoring Summary

Run Id: 19**Location Id:** MW-LF-04**Compliance Test:** Non-Parametric Prediction Interval on Background Useing largest background data value.

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Fluoride, total mg/L	07/27/2017	429194005	1 of 2	0.140	< 0.100	n		--
Fluoride, total mg/L	09/25/2017	433625006	1 of 2	0.140	< 0.100	n		--

Run Id: 20**Location Id:** MW-LF-04**Compliance Test:** Non-Parametric Prediction Interval on Background Useing largest background data value.

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Sulfate, tot mg/L	07/27/2017	AB28022	1 of 2	2.720	< 0.500	n		--
Sulfate, tot mg/L	09/25/2017	AB28752	1 of 2	2.720	< 0.500	n		--

Run Id: 21**Location Id:** MW-LF-04**Compliance Test:** Parametric Prediction Interval on Background

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Total Dissolved Solids mg/L	07/28/2017	AB28022	1 of 2	135.412	41.000	n		--
Total Dissolved Solids mg/L	09/25/2017	AB28752	1 of 2	135.412	31.000	n		--

Run Id: 22**Location Id:** MW-LF-05

NOTE: If trend test is performed, the background slope is listed under the Upper Limit heading and the compliance slope is listed under the Compliance Result heading.

## Detection Monitoring Summary

Run Id: 22**Location Id:** MW-LF-05**Compliance Test:** Double Quantification Rule

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Boron, total mg/L	07/27/2017	AB28025	--	--	< 1.000	n		--
Boron, total mg/L	09/25/2017	AB28763	--	--	< 1.000	n		--

Run Id: 23**Location Id:** MW-LF-05**Compliance Test:** Non-Parametric Prediction Interval on Background Using largest background data value.

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Calcium, Total mg/L	07/27/2017	AB28025	1 of 2	10.600	2.190	n		--
Calcium, Total mg/L	09/25/2017	AB28763	1 of 2	10.600	2.334	n		--

Run Id: 24**Location Id:** MW-LF-05**Compliance Test:** Parametric Prediction Interval on Background

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Chloride, tot mg/L	07/28/2017	AB28024	1 of 2	23.43	6.99	n		--
Chloride, tot mg/L	09/25/2017	AB28753	1 of 2	23.43	7.24	n		--

Run Id: 25**Location Id:** MW-LF-05

NOTE: If trend test is performed, the background slope is listed under the Upper Limit heading and the compliance slope is listed under the Compliance Result heading.



## Detection Monitoring Summary

Run Id: 25**Location Id:** MW-LF-05**Compliance Test:** Parametric Prediction Interval on Background

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Field pH S.U.	07/28/2017	FLD20170727	1 of 2	5.372	4.200	n/n		--
Field pH S.U.	09/25/2017	FLD20170925	1 of 2	5.372	4.200	n/n		--

Run Id: 26**Location Id:** MW-LF-05**Compliance Test:** Non-Parametric Prediction Interval on Background Using largest background data value.

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Fluoride, total mg/L	07/27/2017	429194006	1 of 2	0.140	< 0.100	n		--
Fluoride, total mg/L	09/25/2017	433625007	1 of 2	0.140	< 0.100	n		--

Run Id: 27**Location Id:** MW-LF-05**Compliance Test:** Non-Parametric Prediction Interval on Background Using largest background data value.

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Sulfate, tot mg/L	07/27/2017	AB28024	1 of 2	2.720	< 0.500	n		--
Sulfate, tot mg/L	09/25/2017	AB28753	1 of 2	2.720	< 0.500	n		--

Run Id: 28**Location Id:** MW-LF-05

NOTE: If trend test is performed, the background slope is listed under the Upper Limit heading and the compliance slope is listed under the Compliance Result heading.

## Detection Monitoring Summary

Run Id: 28**Location Id:** MW-LF-05**Compliance Test:** Parametric Prediction Interval on Background

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Total Dissolved Solids mg/L	07/28/2017	AB28024	1 of 2	135.412	54.000	n		--
Total Dissolved Solids mg/L	09/25/2017	AB28753	1 of 2	135.412	34.000	n		--

Run Id: 29**Location Id:** MW-LF-06**Compliance Test:** Double Quantification Rule

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Boron, total mg/L	07/27/2017	AB28029	--	--	< 1.000	n		--
Boron, total mg/L	09/26/2017	AB28764	--	--	< 1.000	n		--

Run Id: 30**Location Id:** MW-LF-06**Compliance Test:** Non-Parametric Prediction Interval on Background Using largest background data value.

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Calcium, Total mg/L	07/27/2017	AB28029	1 of 2	10.600	2.310	n		--
Calcium, Total mg/L	09/26/2017	AB28764	1 of 2	10.600	2.229	n		--

Run Id: 31**Location Id:** MW-LF-06

NOTE: If trend test is performed, the background slope is listed under the Upper Limit heading and the compliance slope is listed under the Compliance Result heading.

### Detection Monitoring Summary

Run Id: 31

**Location Id:** MW-LF-06

**Compliance Test:** Parametric Prediction Interval on Background

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Chloride, tot mg/L	07/28/2017	AB28028	1 of 2	23.43	7.49	n		--
Chloride, tot mg/L	09/26/2017	AB28754	1 of 2	23.43	7.31	n		--

Run Id: 32

**Location Id:** MW-LF-06

**Compliance Test:** Parametric Prediction Interval on Background

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Field pH S.U.	07/28/2017	FLD20170727	1 of 2	5.372	4.100	n/n		--
Field pH S.U.	09/26/2017	FLD20170926	1 of 2	5.372	4.400	n/n		--

Run Id: 33

**Location Id:** MW-LF-06

**Compliance Test:** Non-Parametric Prediction Interval on Background Using largest background data value.

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Fluoride, total mg/L	07/27/2017	429194008	1 of 2	0.140	< 0.100	n		--
Fluoride, total mg/L	09/26/2017	433625008	1 of 2	0.140	< 0.100	n		--

Run Id: 34

**Location Id:** MW-LF-06

NOTE: If trend test is performed, the background slope is listed under the Upper Limit heading and the compliance slope is listed under the Compliance Result heading.

## Cope Station

## Detection Monitoring Summary

Run Id: 34

Location Id: MW-LF-06

Compliance Test: Non-Parametric Prediction Interval on Background Useing largest background data value.

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Sulfate, tot mg/L	07/27/2017	AB28028	1 of 2	2.720	< 0.500	n		--
Sulfate, tot mg/L	09/26/2017	AB28754	1 of 2	2.720	< 0.500	n		--

Run Id: 35

Location Id: MW-LF-06

Compliance Test: Parametric Prediction Interval on Background

<u>Parameter</u>	<u>Sample Date</u>	<u>Lab Id</u>	<u>Re Testing</u>	<u>Upper Limit</u>	<u>Compliance Result</u>	<u>Exceedance</u>	<u>Possible SSI</u>	<u>Post-Hoc Trend</u>
Total Dissolved Solids mg/L	07/28/2017	AB28028	1 of 2	135.412	52.000	n		--
Total Dissolved Solids mg/L	09/26/2017	AB28754	1 of 2	135.412	34.000	n		--

NOTE: If trend test is performed, the background slope is listed under the Upper Limit heading and the compliance slope is listed under the Compliance Result heading.

Cope Station

January 18, 2018

1:50:49 PM

All Background Results Non-Detect

Location Id: MW-LF-02  
Parameter: Boron, total

Run Id: 1

Method: Double Quantification Rule  
Percent ND: 100  
ND Approach: > 50% to <= 100 % Substitute PQL

<u>Sample Date</u>	<u>Modified Result</u>	<u>Analysis Result</u>	<u>Detection Limit</u>	<u>PQL</u>	<u>RL</u>	<u>Non Detect</u>	<u>Exceedance</u>
07/27/2017	1.000	0.044	0.044	1.000	0.000	Y	N
08/03/2017	1.000	0.052	0.044	1.000	0.000	Y	N
09/25/2017	1.000	0.044	0.044	1.000	0.000	Y	N

**All Background Results Non-Detect**

---

**Location Id:** MW-LF-03

Run Id: 8

**Parameter:** Boron, total**Method:** Double Quantification Rule**Percent ND:** 100**ND Approach:** > 50% to <= 100 % Substitute PQL

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<u>Sample Date</u>	<u>Modified Result</u>	<u>Analysis Result</u>	<u>Detection Limit</u>	<u>PQL</u>	<u>RL</u>	<u>Non Detect</u>	<u>Exceedance</u>
07/27/2017	1.000	0.044	0.044	1.000	0.000	Y	N
09/25/2017	1.000	0.044	0.044	1.000	0.000	Y	N

---

**All Background Results Non-Detect**

**Location Id:** MW-LF-04  
**Parameter:** Boron, total

Run Id: 15

**Method:** Double Quantification Rule  
**Percent ND:** 100  
**ND Approach:** > 50% to <= 100 % Substitute PQL

<u>Sample Date</u>	<u>Modified Result</u>	<u>Analysis Result</u>	<u>Detection Limit</u>	<u>PQL</u>	<u>RL</u>	<u>Non Detect</u>	<u>Exceedance</u>
07/27/2017	1.000	0.044	0.044	1.000	0.000	Y	N
09/25/2017	1.000	0.044	0.044	1.000	0.000	Y	N

**All Background Results Non-Detect**

**Location Id:** MW-LF-05  
**Parameter:** Boron, total

Run Id: 22

**Method:** Double Quantification Rule  
**Percent ND:** 100  
**ND Approach:** > 50% to <= 100 % Substitute PQL

<u>Sample Date</u>	<u>Modified Result</u>	<u>Analysis Result</u>	<u>Detection Limit</u>	<u>PQL</u>	<u>RL</u>	<u>Non Detect</u>	<u>Exceedance</u>
07/27/2017	1.000	0.044	0.044	1.000	0.000	Y	N
09/25/2017	1.000	0.044	0.044	1.000	0.000	Y	N



All Background Results Non-Detect

Location Id: MW-LF-06

Run Id: 29

Parameter: Boron, total

Method: Double Quantification Rule

Percent ND: 100

ND Approach: > 50% to <= 100 % Substitute PQL

<u>Sample Date</u>	<u>Modified Result</u>	<u>Analysis Result</u>	<u>Detection Limit</u>	<u>PQL</u>	<u>RL</u>	<u>Non Detect</u>	<u>Exceedance</u>
07/27/2017	1.000	0.044	0.044	1.000	0.000	Y	N
09/26/2017	1.000	0.044	0.044	1.000	0.000	Y	N

**All Background Results Non-Detect**

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**Cope Station**  
**Parametric Prediction Interval on Background - Background Data Calculation**

<u>Number Of Locations:</u>	5	<u>Annual Site Wide False Positive Rate (SWFPR):</u>	0.10
<u>Number Of Parameters:</u>	7	<u>Sample Events per Year:</u>	2
<u>Sampling Plan:</u>	Interwell	<u>Verification Sampling:</u>	Pass 1 of 2 (one resample)

**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

Insufficient Background: 0  
DOR Tests: 1

<b><u>Parameter Name:</u></b>	<b>Chloride, tot, mg/L</b>	<u>Background Date Range:</u>	05/11/2016 to 09/26/2017
<u>Alpha Per Test FPR:</u>	0.00174	<u>Option for LT Pts:</u>	0% to <= 15% Substitute ½ PQL
<u>Total Pts</u>	21	<u>Kappa for Selected Verification Plan:</u>	1.879
<u>LT Pts</u>	0	<u>Mean</u>	11.462
<u>%LT Pts</u>	0	<u>StdDev</u>	6.367
<u>Normal/Log Normal</u>	y/n	<u>ln Mean</u>	2.241
<u>Log Transformed:</u>	n	<u>ln StdDev</u>	0.695

<b><u>Parameter Name:</u></b>	<b>Field pH, S.U.</b>	<u>Background Date Range:</u>	05/11/2016 to 09/26/2017
<u>Alpha Per Test FPR:</u>	0.00174	<u>Option for LT Pts:</u>	0% to <= 15% Substitute ½ PQL
<u>Total Pts</u>	21	<u>Kappa for Selected Verification Plan:</u>	2.069
<u>LT Pts</u>	0	<u>Mean</u>	4.4238
<u>%LT Pts</u>	0	<u>StdDev</u>	0.4582
<u>Normal/Log Normal</u>	y/y	<u>ln Mean</u>	1.4821
<u>Log Transformed:</u>	n	<u>ln StdDev</u>	0.0999

<b><u>Parameter Name:</u></b>	<b>Total Dissolved Solids, mg/L</b>	<u>Background Date Range:</u>	05/11/2016 to 09/26/2017
<u>Alpha Per Test FPR:</u>	0.00174	<u>Option for LT Pts:</u>	0% to <= 15% Substitute ½ PQL
<u>Total Pts</u>	21	<u>Kappa for Selected Verification Plan:</u>	1.879
<u>LT Pts</u>	0	<u>Mean</u>	61.5714
<u>%LT Pts</u>	0	<u>StdDev</u>	39.2970
<u>Normal/Log Normal</u>	y/y	<u>ln Mean</u>	3.8973
<u>Log Transformed:</u>	n	<u>ln StdDev</u>	0.7138

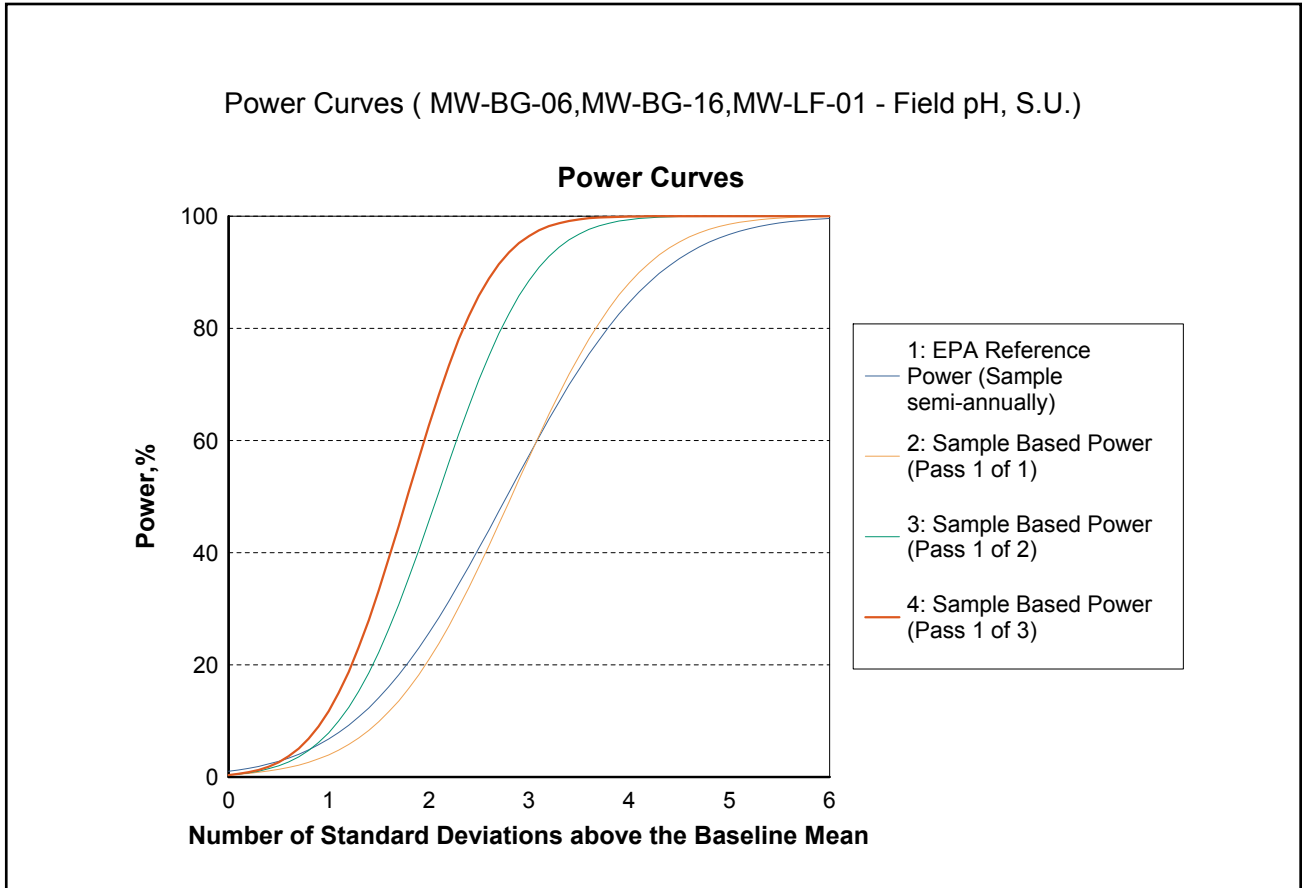


### Cope Station Parametric Prediction Interval on Background - Background Data Calculation

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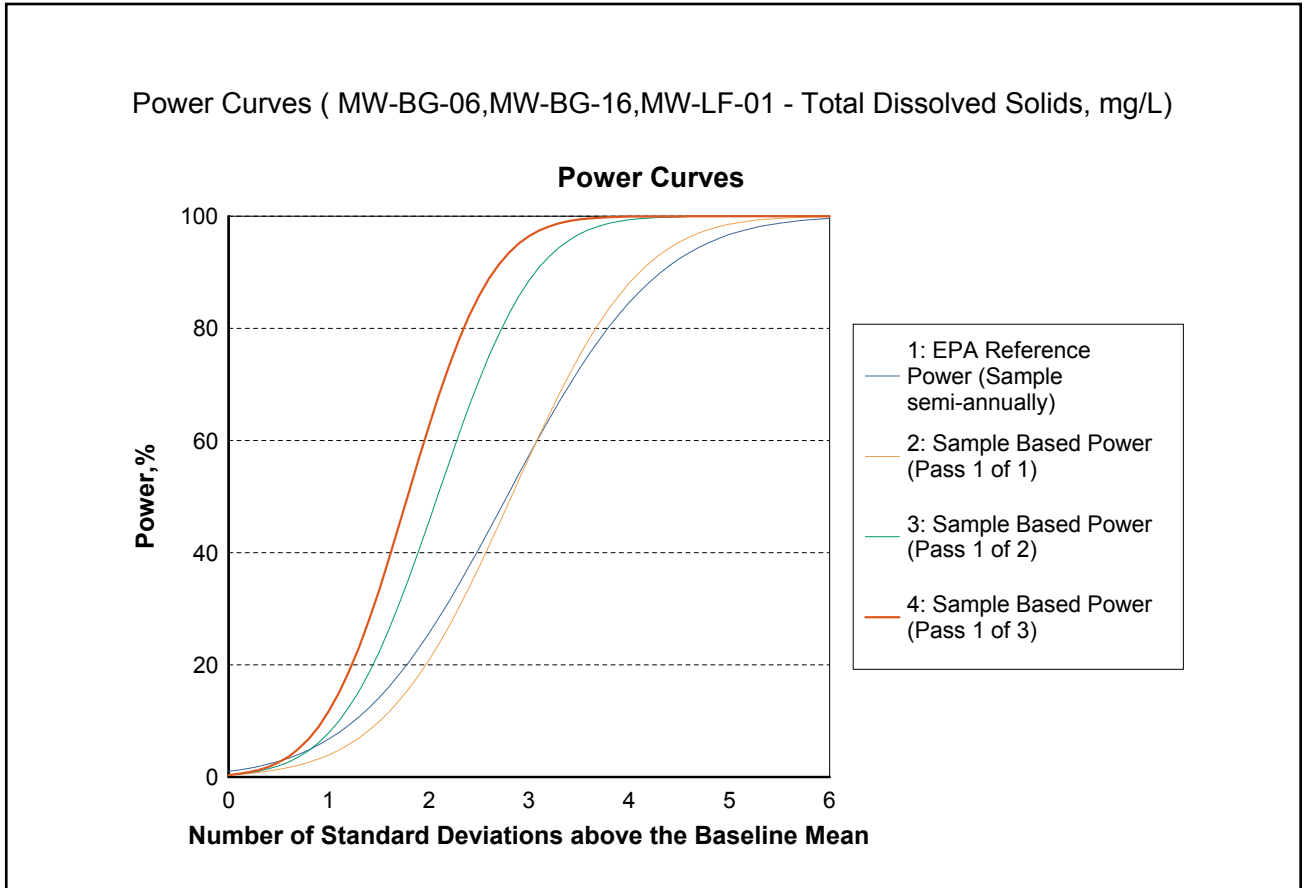
<u>Number Of Locations:</u> 5	<u>Annual Site Wide False Positive Rate (SWFPR):</u> 0.10
<u>Number Of Parameters:</u> 7	<u>Sample Events per Year:</u> 2
<u>Sampling Plan:</u> Interwell	<u>Verification Sampling:</u> Pass 1 of 2 (one resample)

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### Cope Station Parametric Prediction Interval on Background - Background Data Calculation

<u>Number Of Locations:</u> 5	<u>Annual Site Wide False Positive Rate (SWFPR):</u> 0.10
<u>Number Of Parameters:</u> 7	<u>Sample Events per Year:</u> 2
<u>Sampling Plan:</u> Interwell	<u>Verification Sampling:</u> Pass 1 of 2 (one resample)



## Cope Station Parametric Prediction Interval on Background - Compliance Analysis

### User Supplied Information

**Sided:** 1  
**Background Date Range:** 05/11/2016 to 09/26/2017  
**Compliance Date Range:** 07/26/2017 to 09/26/2017  
**Compliance Locations:** MW-LF-02,MW-LF-03,MW-LF-04,MW-LF-05,MW-LF-06  
**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

**Location** MW-LF-02

Run Id: 3

**Parameter Name:** Chloride, tot, mg/L

**Option for LT Pts (Compliance Data)** : 0% to <= 15% Substitute PQL

<u>Sample Date</u>	<u>Analysis Result</u>	<u>Upper Limit</u>	<u>Upper Limit</u>	Result >
7/28/2017	28.42	23.43		y
8/3/2017	20.54	23.43		n
9/25/2017	24.00	23.43		y

Run Id: 4

**Parameter Name:** Field pH, S.U.

**Option for LT Pts (Compliance Data)** : 0% to <= 15% Substitute PQL

<u>Sample Date</u>	<u>Analysis Result</u>	<u>Upper Limit</u>	<u>Upper Limit</u>	Result >	<u>Lower Limit</u>	<u>Lower Limit</u>	Result <
7/28/2017	4.000	5.372		n	3.476		n
9/25/2017	4.300	5.372		n	3.476		n

Run Id: 7

**Parameter Name:** Total Dissolved Solids, mg/L

**Option for LT Pts (Compliance Data)** : 0% to <= 15% Substitute PQL

<u>Sample Date</u>	<u>Analysis Result</u>	<u>Upper Limit</u>	<u>Upper Limit</u>	Result >
7/28/2017	82.000	135.412		n
8/3/2017	53.000	135.412		n
9/25/2017	61.000	135.412		n

Prediction Interval is based on Normal Distribution and the number of compliance periods (k).

## Cope Station Parametric Prediction Interval on Background - Compliance Analysis

### User Supplied Information

**Sided:** 1  
**Background Date Range:** 05/11/2016 to 09/26/2017  
**Compliance Date Range:** 07/26/2017 to 09/26/2017  
**Compliance Locations:** MW-LF-02,MW-LF-03,MW-LF-04,MW-LF-05,MW-LF-06  
**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

**Location** MW-LF-03

Run Id: 10

**Parameter Name:** Chloride, tot, mg/L

**Option for LT Pts (Compliance Data)** : 0% to <= 15% Substitute PQL

<u>Sample Date</u>	<u>Analysis Result</u>	<u>Upper Limit</u>	<u>Upper Limit</u>	Result >
7/28/2017	3.44	23.43		n
9/25/2017	3.42	23.43		n

Run Id: 11

**Parameter Name:** Field pH, S.U.

**Option for LT Pts (Compliance Data)** : 0% to <= 15% Substitute PQL

<u>Sample Date</u>	<u>Analysis Result</u>	<u>Upper Limit</u>	<u>Upper Limit</u>	Result >	Result <	
					<u>Lower Limit</u>	<u>Lower Limit</u>
7/28/2017	4.200	5.372		n	3.476	n
9/25/2017	4.400	5.372		n	3.476	n

Run Id: 14

**Parameter Name:** Total Dissolved Solids, mg/L

**Option for LT Pts (Compliance Data)** : 0% to <= 15% Substitute PQL

<u>Sample Date</u>	<u>Analysis Result</u>	<u>Upper Limit</u>	<u>Upper Limit</u>	Result >
7/28/2017	29.000	135.412		n
9/25/2017	19.000	135.412		n

Prediction Interval is based on Normal Distribution and the number of compliance periods (k).



## Cope Station Parametric Prediction Interval on Background - Compliance Analysis

### User Supplied Information

**Sided:** 1  
**Background Date Range:** 05/11/2016 to 09/26/2017  
**Compliance Date Range:** 07/26/2017 to 09/26/2017  
**Compliance Locations:** MW-LF-02,MW-LF-03,MW-LF-04,MW-LF-05,MW-LF-06  
**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

**Location** MW-LF-04

Run Id: 17

**Parameter Name:** Chloride, tot, mg/L

**Option for LT Pts (Compliance Data)** : 0% to <= 15% Substitute PQL

<u>Sample Date</u>	<u>Analysis Result</u>	<u>Upper Limit</u>	<u>Upper Limit</u>	Result >
7/28/2017	3.74	23.43		n
9/25/2017	4.78	23.43		n

Run Id: 18

**Parameter Name:** Field pH, S.U.

**Option for LT Pts (Compliance Data)** : 0% to <= 15% Substitute PQL

<u>Sample Date</u>	<u>Analysis Result</u>	<u>Upper Limit</u>	<u>Upper Limit</u>	Result >	Result <	
					<u>Lower Limit</u>	<u>Lower Limit</u>
7/28/2017	4.300	5.372		n	3.476	n
9/25/2017	4.300	5.372		n	3.476	n

Run Id: 21

**Parameter Name:** Total Dissolved Solids, mg/L

**Option for LT Pts (Compliance Data)** : 0% to <= 15% Substitute PQL

<u>Sample Date</u>	<u>Analysis Result</u>	<u>Upper Limit</u>	<u>Upper Limit</u>	Result >
7/28/2017	41.000	135.412		n
9/25/2017	31.000	135.412		n

Prediction Interval is based on Normal Distribution and the number of compliance periods (k).

## Cope Station Parametric Prediction Interval on Background - Compliance Analysis

### User Supplied Information

**Sided:** 1  
**Background Date Range:** 05/11/2016 to 09/26/2017  
**Compliance Date Range:** 07/26/2017 to 09/26/2017  
**Compliance Locations:** MW-LF-02,MW-LF-03,MW-LF-04,MW-LF-05,MW-LF-06  
**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

**Location** MW-LF-05

Run Id: 24

**Parameter Name:** Chloride, tot, mg/L

**Option for LT Pts (Compliance Data)** : 0% to <= 15% Substitute PQL

<u>Sample Date</u>	<u>Analysis Result</u>	<u>Upper Limit</u>	<u>Upper Limit</u>	Result >
7/28/2017	6.99	23.43		n
9/25/2017	7.24	23.43		n

Run Id: 25

**Parameter Name:** Field pH, S.U.

**Option for LT Pts (Compliance Data)** : 0% to <= 15% Substitute PQL

<u>Sample Date</u>	<u>Analysis Result</u>	<u>Upper Limit</u>	<u>Upper Limit</u>	Result >	Result <	
					<u>Lower Limit</u>	<u>Lower Limit</u>
7/28/2017	4.200	5.372		n	3.476	n
9/25/2017	4.200	5.372		n	3.476	n

Run Id: 28

**Parameter Name:** Total Dissolved Solids, mg/L

**Option for LT Pts (Compliance Data)** : 0% to <= 15% Substitute PQL

<u>Sample Date</u>	<u>Analysis Result</u>	<u>Upper Limit</u>	<u>Upper Limit</u>	Result >
7/28/2017	54.000	135.412		n
9/25/2017	34.000	135.412		n

Prediction Interval is based on Normal Distribution and the number of compliance periods (k).

## Cope Station Parametric Prediction Interval on Background - Compliance Analysis

### User Supplied Information

**Sided:** 1  
**Background Date Range:** 05/11/2016 to 09/26/2017  
**Compliance Date Range:** 07/26/2017 to 09/26/2017  
**Compliance Locations:** MW-LF-02,MW-LF-03,MW-LF-04,MW-LF-05,MW-LF-06  
**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

**Location** MW-LF-06

Run Id: 31

**Parameter Name:** Chloride, tot, mg/L

**Option for LT Pts (Compliance Data)** : 0% to <= 15% Substitute PQL

<u>Sample Date</u>	<u>Analysis Result</u>	<u>Upper Limit</u>	<u>Upper Limit</u>	Result >
7/28/2017	7.49	23.43		n
9/26/2017	7.31	23.43		n

Run Id: 32

**Parameter Name:** Field pH, S.U.

**Option for LT Pts (Compliance Data)** : 0% to <= 15% Substitute PQL

<u>Sample Date</u>	<u>Analysis Result</u>	<u>Upper Limit</u>	<u>Upper Limit</u>	Result >	Result <	
					<u>Lower Limit</u>	<u>Lower Limit</u>
7/28/2017	4.100	5.372		n	3.476	n
9/26/2017	4.400	5.372		n	3.476	n

Run Id: 35

**Parameter Name:** Total Dissolved Solids, mg/L

**Option for LT Pts (Compliance Data)** : 0% to <= 15% Substitute PQL

<u>Sample Date</u>	<u>Analysis Result</u>	<u>Upper Limit</u>	<u>Upper Limit</u>	Result >
7/28/2017	52.000	135.412		n
9/26/2017	34.000	135.412		n

Prediction Interval is based on Normal Distribution and the number of compliance periods (k).

**Cope Station**  
**Parametric Prediction Interval on Background - Compliance Analysis**

---

**User Supplied Information**

**Sided:** 1  
**Background Date Range:** 05/11/2016 to 09/26/2017  
**Compliance Date Range:** 07/26/2017 to 09/26/2017  
**Compliance Locations:** MW-LF-02,MW-LF-03,MW-LF-04,MW-LF-05,MW-LF-06  
**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

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Prediction Interval is based on Normal Distribution and the number of compliance periods (k).

**Cope Station  
Non-Parametric Prediction Interval on Background**

**User Supplied Information**

**Background Date Range:** 05/11/2016 to 09/26/2017  
**Compliance Date Range:** 07/26/2017 to 9/26/2017  
**No. of Verification Resamples:** 1

Run Id: 2

**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

<u>Parameter Code</u>	<u>Parameter Name</u>	<u>Units</u>	<u>Background Sample Count</u>	<u>Option for LT Pts.</u>
00916	Calcium, Total	ug/L	21	0% to <= 15% Substitute PQL

<b>One-Sided Upper Confidence Level, %</b>	<b>PU (Upper) Value:</b>
<b>98.10</b>	<b>10.600</b>

<u>Location</u>	<u>Sample Date</u>	<u>Sample Result</u>	<u>Greater than PU (Upper)</u>
MW-LF-02	07/27/2017	3.350	n
MW-LF-02	08/03/2017	5.547	n
MW-LF-02	09/25/2017	3.344	n

Run Id: 5

**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

<u>Parameter Code</u>	<u>Parameter Name</u>	<u>Units</u>	<u>Background Sample Count</u>	<u>Option for LT Pts.</u>
00951	Fluoride, total	mg/L	21	> 50% to <= 100 % Substitute PQL

<b>One-Sided Upper Confidence Level, %</b>	<b>PU (Upper) Value:</b>
<b>98.10</b>	<b>0.140</b>

<u>Location</u>	<u>Sample Date</u>	<u>Sample Result</u>	<u>Greater than PU (Upper)</u>
MW-LF-02	07/27/2017	0.124	n
MW-LF-02	08/03/2017	<0.500	n
MW-LF-02	09/25/2017	0.104	n

**Cope Station**  
**Non-Parametric Prediction Interval on Background**

**User Supplied Information**

**Background Date Range:** 05/11/2016 to 09/26/2017  
**Compliance Date Range:** 07/26/2017 to 9/26/2017  
**No. of Verification Resamples:** 1

Run Id: 6

**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

<u>Parameter Code</u>	<u>Parameter Name</u>	<u>Units</u>	<u>Background Sample Count</u>	<u>Option for LT Pts.</u>
00945	Sulfate, tot	mg/L	21	> 15% to <= 50% Substitute PQL

**One-Sided Upper Confidence Level, %** **PU (Upper) Value:**  
**2.720**  
**98.10**

<u>Location</u>	<u>Sample Date</u>	<u>Sample Result</u>	<u>Greater than PU (Upper)</u>
MW-LF-02	07/27/2017	2.620	n
MW-LF-02	08/03/2017	2.361	n
MW-LF-02	09/25/2017	2.800	y

Run Id: 9

**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

<u>Parameter Code</u>	<u>Parameter Name</u>	<u>Units</u>	<u>Background Sample Count</u>	<u>Option for LT Pts.</u>
00916	Calcium, Total	ug/L	21	0% to <= 15% Substitute PQL

**One-Sided Upper Confidence Level, %** **PU (Upper) Value:**  
**10.600**  
**98.10**

<u>Location</u>	<u>Sample Date</u>	<u>Sample Result</u>	<u>Greater than PU (Upper)</u>
MW-LF-03	07/27/2017	0.823	n
MW-LF-03	09/25/2017	0.724	n

**Cope Station**  
**Non-Parametric Prediction Interval on Background**

**User Supplied Information**

**Background Date Range:** 05/11/2016 to 09/26/2017  
**Compliance Date Range:** 07/26/2017 to 9/26/2017  
**No. of Verification Resamples:** 1

Run Id: 12

**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

<u>Parameter Code</u>	<u>Parameter Name</u>	<u>Units</u>	<u>Background Sample Count</u>	<u>Option for LT Pts.</u>
00951	Fluoride, total	mg/L	21	> 50% to <= 100 % Substitute PQL

<b>One-Sided Upper Confidence Level, %</b>	<b>PU (Upper) Value:</b>
<b>98.10</b>	<b>0.140</b>

<u>Location</u>	<u>Sample Date</u>	<u>Sample Result</u>	<u>Greater than PU (Upper)</u>
MW-LF-03	07/27/2017	<0.100	n
MW-LF-03	09/25/2017	<0.100	n

Run Id: 13

**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

<u>Parameter Code</u>	<u>Parameter Name</u>	<u>Units</u>	<u>Background Sample Count</u>	<u>Option for LT Pts.</u>
00945	Sulfate, tot	mg/L	21	> 15% to <= 50% Substitute PQL

<b>One-Sided Upper Confidence Level, %</b>	<b>PU (Upper) Value:</b>
<b>98.10</b>	<b>2.720</b>

<u>Location</u>	<u>Sample Date</u>	<u>Sample Result</u>	<u>Greater than PU (Upper)</u>
MW-LF-03	07/27/2017	<0.500	n
MW-LF-03	09/25/2017	<0.500	n

**Cope Station**  
**Non-Parametric Prediction Interval on Background**

**User Supplied Information**

**Background Date Range:** 05/11/2016 to 09/26/2017  
**Compliance Date Range:** 07/26/2017 to 9/26/2017  
**No. of Verification Resamples:** 1

Run Id: 16

**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

<u>Parameter Code</u>	<u>Parameter Name</u>	<u>Units</u>	<u>Background Sample Count</u>	<u>Option for LT Pts.</u>
00916	Calcium, Total	ug/L	21	0% to <= 15% Substitute PQL

**One-Sided Upper Confidence Level, %** 98.10 **PU (Upper) Value:** 10.600

<u>Location</u>	<u>Sample Date</u>	<u>Sample Result</u>	<u>Greater than PU (Upper)</u>
MW-LF-04	07/27/2017	1.100	n
MW-LF-04	09/25/2017	1.576	n

Run Id: 19

**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

<u>Parameter Code</u>	<u>Parameter Name</u>	<u>Units</u>	<u>Background Sample Count</u>	<u>Option for LT Pts.</u>
00951	Fluoride, total	mg/L	21	> 50% to <= 100 % Substitute PQL

**One-Sided Upper Confidence Level, %** 98.10 **PU (Upper) Value:** 0.140

<u>Location</u>	<u>Sample Date</u>	<u>Sample Result</u>	<u>Greater than PU (Upper)</u>
MW-LF-04	07/27/2017	<0.100	n
MW-LF-04	09/25/2017	<0.100	n



**Cope Station  
Non-Parametric Prediction Interval on Background**

**User Supplied Information**

**Background Date Range:** 05/11/2016 to 09/26/2017  
**Compliance Date Range:** 07/26/2017 to 9/26/2017  
**No. of Verification Resamples:** 1

Run Id: 20

**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

<u>Parameter Code</u>	<u>Parameter Name</u>	<u>Units</u>	<u>Background Sample Count</u>	<u>Option for LT Pts.</u>
00945	Sulfate, tot	mg/L	21	> 15% to <= 50% Substitute PQL

<b>One-Sided Upper Confidence Level, %</b>	<b>PU (Upper) Value:</b>
<b>98.10</b>	<b>2.720</b>

<u>Location</u>	<u>Sample Date</u>	<u>Sample Result</u>	<u>Greater than PU (Upper)</u>
MW-LF-04	07/27/2017	<0.500	n
MW-LF-04	09/25/2017	<0.500	n

Run Id: 23

**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

<u>Parameter Code</u>	<u>Parameter Name</u>	<u>Units</u>	<u>Background Sample Count</u>	<u>Option for LT Pts.</u>
00916	Calcium, Total	ug/L	21	0% to <= 15% Substitute PQL

<b>One-Sided Upper Confidence Level, %</b>	<b>PU (Upper) Value:</b>
<b>98.10</b>	<b>10.600</b>

<u>Location</u>	<u>Sample Date</u>	<u>Sample Result</u>	<u>Greater than PU (Upper)</u>
MW-LF-05	07/27/2017	2.190	n
MW-LF-05	09/25/2017	2.334	n

**Cope Station**  
**Non-Parametric Prediction Interval on Background**

**User Supplied Information**

**Background Date Range:** 05/11/2016 to 09/26/2017  
**Compliance Date Range:** 07/26/2017 to 9/26/2017  
**No. of Verification Resamples:** 1

Run Id: 26

**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

<u>Parameter Code</u>	<u>Parameter Name</u>	<u>Units</u>	<u>Background Sample Count</u>	<u>Option for LT Pts.</u>
00951	Fluoride, total	mg/L	21	> 50% to <= 100 % Substitute PQL

<b>One-Sided Upper Confidence Level, %</b>	<b>PU (Upper) Value:</b>
98.10	0.140

<u>Location</u>	<u>Sample Date</u>	<u>Sample Result</u>	<u>Greater than PU (Upper)</u>
MW-LF-05	07/27/2017	<0.100	n
MW-LF-05	09/25/2017	<0.100	n

Run Id: 27

**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

<u>Parameter Code</u>	<u>Parameter Name</u>	<u>Units</u>	<u>Background Sample Count</u>	<u>Option for LT Pts.</u>
00945	Sulfate, tot	mg/L	21	> 15% to <= 50% Substitute PQL

<b>One-Sided Upper Confidence Level, %</b>	<b>PU (Upper) Value:</b>
98.10	2.720

<u>Location</u>	<u>Sample Date</u>	<u>Sample Result</u>	<u>Greater than PU (Upper)</u>
MW-LF-05	07/27/2017	<0.500	n
MW-LF-05	09/25/2017	<0.500	n

**Cope Station**  
**Non-Parametric Prediction Interval on Background**

**User Supplied Information**

**Background Date Range:** 05/11/2016 to 09/26/2017  
**Compliance Date Range:** 07/26/2017 to 9/26/2017  
**No. of Verification Resamples:** 1

Run Id: 30

**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

<u>Parameter Code</u>	<u>Parameter Name</u>	<u>Units</u>	<u>Background Sample Count</u>	<u>Option for LT Pts.</u>
00916	Calcium, Total	ug/L	21	0% to <= 15% Substitute PQL

<b>One-Sided Upper Confidence Level, %</b>	<b>PU (Upper) Value:</b>
<b>98.10</b>	<b>10.600</b>

<u>Location</u>	<u>Sample Date</u>	<u>Sample Result</u>	<u>Greater than PU (Upper)</u>
MW-LF-06	07/27/2017	2.310	n
MW-LF-06	09/26/2017	2.229	n

Run Id: 33

**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

<u>Parameter Code</u>	<u>Parameter Name</u>	<u>Units</u>	<u>Background Sample Count</u>	<u>Option for LT Pts.</u>
00951	Fluoride, total	mg/L	21	> 50% to <= 100 % Substitute PQL

<b>One-Sided Upper Confidence Level, %</b>	<b>PU (Upper) Value:</b>
<b>98.10</b>	<b>0.140</b>

<u>Location</u>	<u>Sample Date</u>	<u>Sample Result</u>	<u>Greater than PU (Upper)</u>
MW-LF-06	07/27/2017	<0.100	n
MW-LF-06	09/26/2017	<0.100	n

**Cope Station**  
**Non-Parametric Prediction Interval on Background**

**User Supplied Information**

**Background Date Range:** 05/11/2016 to 09/26/2017  
**Compliance Date Range:** 07/26/2017 to 9/26/2017  
**No. of Verification Resamples:** 1

Run Id: 34

**Background Locations:** MW-BG-06,MW-BG-16,MW-LF-01

<u>Parameter Code</u>	<u>Parameter Name</u>	<u>Units</u>	<u>Background Sample Count</u>	<u>Option for LT Pts.</u>
00945	Sulfate, tot	mg/L	21	> 15% to <= 50% Substitute PQL

<b>One-Sided Upper Confidence Level, %</b>	<b>PU (Upper) Value:</b>
<b>98.10</b>	<b>2.720</b>

<u>Location</u>	<u>Sample Date</u>	<u>Sample Result</u>	<u>Greater than PU (Upper)</u>
MW-LF-06	07/27/2017	<0.500	n
MW-LF-06	09/26/2017	<0.500	n

## Cope Station Theil Sen Mann-Kendall Trend Analysis

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### **Post Hoc Trend Analysis**

Run Id: 1

<b>Location ID:</b> MW-LF-02	<b>Parameter Code:</b> 01022
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Boron, total
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> mg/L
<b>Option for LT Points:</b> > 50% to <= 100 % Substitute PQL	<b>Percent of ND:</b> 100

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	0.000	mg/L per year
Lower Confidence Limit of Slope, M1:	0.000	mg/L per year
Upper Confidence Limit of Slope, M2+1:	0.000	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	0.000
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 2

<b>Location ID:</b> MW-LF-02	<b>Parameter Code:</b> 00916
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Calcium, Total
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> ug/L
<b>Option for LT Points:</b> 0% to <= 15% Substitute PQL	<b>Percent of ND:</b> 0

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	-0.037	ug/L per year
Lower Confidence Limit of Slope, M1:	-1.144	ug/L per year
Upper Confidence Limit of Slope, M2+1:	0.740	ug/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	0.000
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 3

<b>Location ID:</b> MW-LF-02	<b>Parameter Code:</b> 00940
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Chloride, tot
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> mg/L
<b>Option for LT Points:</b> 0% to <= 15% Substitute PQL	<b>Percent of ND:</b> 0

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	-8.89	mg/L per year
Lower Confidence Limit of Slope, M1:	-15.53	mg/L per year
Upper Confidence Limit of Slope, M2+1:	-2.34	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	-1.79
Z test:	1.64
At the 1.0 % Confidence Level (One-Sided Test):	Downward

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 4

<b>Location ID:</b> MW-LF-02	<b>Parameter Code:</b> 00400
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Field pH
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> S.U.
<b>Option for LT Points:</b> 0% to <= 15% Substitute PQL	<b>Percent of ND:</b> 0

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	-0.124	S.U. per year
Lower Confidence Limit of Slope, M1:	-0.886	S.U. per year
Upper Confidence Limit of Slope, M2+1:	0.763	S.U. per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	-0.316
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None



**Cope Station**  
**Theil Sen Mann-Kendall Trend Analysis**

---

**Post Hoc Trend Analysis**

Run Id: 5

<b>Location ID:</b> MW-LF-02	<b>Parameter Code:</b> 00951
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Fluoride, total
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> mg/L
<b>Option for LT Points:</b> > 15% to <= 50% Substitute PQL	<b>Percent of ND:</b> 20

---

Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	-0.006	mg/L per year
Lower Confidence Limit of Slope, M1:	-0.034	mg/L per year
Upper Confidence Limit of Slope, M2+1:	0.041	mg/L per year

Non-parametric Mann-Kendall Test for Trend

S Statistic:	0.000
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### Post Hoc Trend Analysis

Run Id: 6

<b>Location ID:</b> MW-LF-02	<b>Parameter Code:</b> 00945
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Sulfate, tot
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> mg/L
<b>Option for LT Points:</b> 0% to <= 15% Substitute PQL	<b>Percent of ND:</b> 0

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	-0.079	mg/L per year
Lower Confidence Limit of Slope, M1:	-1.517	mg/L per year
Upper Confidence Limit of Slope, M2+1:	1.423	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	-0.179
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### Post Hoc Trend Analysis

Run Id: 7

<b>Location ID:</b> MW-LF-02	<b>Parameter Code:</b> 00515
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Total Dissolved Solids
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> mg/L
<b>Option for LT Points:</b> 0% to <= 15% Substitute PQL	<b>Percent of ND:</b> 0

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	3.805	mg/L per year
Lower Confidence Limit of Slope, M1:	-19.154	mg/L per year
Upper Confidence Limit of Slope, M2+1:	29.980	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	0.179
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 8

<b>Location ID:</b> MW-LF-03	<b>Parameter Code:</b> 01022
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Boron, total
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> mg/L
<b>Option for LT Points:</b> > 50% to <= 100 % Substitute PQL	<b>Percent of ND:</b> 100

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	0.000	mg/L per year
Lower Confidence Limit of Slope, M1:	0.000	mg/L per year
Upper Confidence Limit of Slope, M2+1:	0.000	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	0.000
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 9

<b>Location ID:</b> MW-LF-03	<b>Parameter Code:</b> 00916
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Calcium, Total
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> ug/L
<b>Option for LT Points:</b> 0% to <= 15% Substitute PQL	<b>Percent of ND:</b> 0

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	-0.585	ug/L per year
Lower Confidence Limit of Slope, M1:	-0.976	ug/L per year
Upper Confidence Limit of Slope, M2+1:	-0.077	ug/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	-2.189
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	Downward

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 10

<b>Location ID:</b> MW-LF-03	<b>Parameter Code:</b> 00940
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Chloride, tot
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> mg/L
<b>Option for LT Points:</b> 0% to <= 15% Substitute PQL	<b>Percent of ND:</b> 0

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	0.09	mg/L per year
Lower Confidence Limit of Slope, M1:	-0.39	mg/L per year
Upper Confidence Limit of Slope, M2+1:	0.30	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	0.31
Z test:	1.64
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 11

<b>Location ID:</b> MW-LF-03	<b>Parameter Code:</b> 00400
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Field pH
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> S.U.
<b>Option for LT Points:</b> 0% to <= 15% Substitute PQL	<b>Percent of ND:</b> 0

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	-0.222	S.U. per year
Lower Confidence Limit of Slope, M1:	-1.152	S.U. per year
Upper Confidence Limit of Slope, M2+1:	0.240	S.U. per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	-0.316
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 12

**Location ID:** MW-LF-03

**Parameter Code:** 00951

**Confidence Level:** 0.95

**Parameter:** Fluoride, total

**Date Range:** 05/12/2016 to 09/25/2017

**Units:** mg/L

**Option for LT Points:** > 50% to <= 100 % Substitute PQL

**Percent of ND:** 100

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	0.000	mg/L per year
Lower Confidence Limit of Slope, M1:	0.000	mg/L per year
Upper Confidence Limit of Slope, M2+1:	0.000	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	0.000
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None



## Cope Station Theil Sen Mann-Kendall Trend Analysis

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### Post Hoc Trend Analysis

Run Id: 13

<b>Location ID:</b> MW-LF-03	<b>Parameter Code:</b> 00945
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Sulfate, tot
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> mg/L
<b>Option for LT Points:</b> > 50% to <= 100 % Substitute PQL	<b>Percent of ND:</b> 89

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	0.000	mg/L per year
Lower Confidence Limit of Slope, M1:	-0.765	mg/L per year
Upper Confidence Limit of Slope, M2+1:	0.402	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	0.000
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 14

<b>Location ID:</b> MW-LF-03	<b>Parameter Code:</b> 00515
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Total Dissolved Solids
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> mg/L
<b>Option for LT Points:</b> 0% to <= 15% Substitute PQL	<b>Percent of ND:</b> 0

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	3.304	mg/L per year
Lower Confidence Limit of Slope, M1:	-3.850	mg/L per year
Upper Confidence Limit of Slope, M2+1:	11.508	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	0.527
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 15

<b>Location ID:</b> MW-LF-04	<b>Parameter Code:</b> 01022
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Boron, total
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> mg/L
<b>Option for LT Points:</b> > 50% to <= 100 % Substitute PQL	<b>Percent of ND:</b> 100

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	0.000	mg/L per year
Lower Confidence Limit of Slope, M1:	0.000	mg/L per year
Upper Confidence Limit of Slope, M2+1:	0.000	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	0.000
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 16

**Location ID:** MW-LF-04

**Parameter Code:** 00916

**Confidence Level:** 0.95

**Parameter:** Calcium, Total

**Date Range:** 05/12/2016 to 09/25/2017

**Units:** ug/L

**Option for LT Points:** 0% to <= 15% Substitute PQL

**Percent of ND:** 0

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	0.113	ug/L per year
Lower Confidence Limit of Slope, M1:	-0.351	ug/L per year
Upper Confidence Limit of Slope, M2+1:	0.441	ug/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	0.521
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### Post Hoc Trend Analysis

Run Id: 17

<b>Location ID:</b> MW-LF-04	<b>Parameter Code:</b> 00940
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Chloride, tot
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> mg/L
<b>Option for LT Points:</b> 0% to <= 15% Substitute PQL	<b>Percent of ND:</b> 0

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	0.70	mg/L per year
Lower Confidence Limit of Slope, M1:	-0.25	mg/L per year
Upper Confidence Limit of Slope, M2+1:	1.76	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	1.47
Z test:	1.64
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 18

<b>Location ID:</b> MW-LF-04	<b>Parameter Code:</b> 00400
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Field pH
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> S.U.
<b>Option for LT Points:</b> 0% to <= 15% Substitute PQL	<b>Percent of ND:</b> 0

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	0.000	S.U. per year
Lower Confidence Limit of Slope, M1:	-0.623	S.U. per year
Upper Confidence Limit of Slope, M2+1:	0.434	S.U. per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	-0.107
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 19

**Location ID:** MW-LF-04

**Parameter Code:** 00951

**Confidence Level:** 0.95

**Parameter:** Fluoride, total

**Date Range:** 05/12/2016 to 09/25/2017

**Units:** mg/L

**Option for LT Points:** > 50% to <= 100 % Substitute PQL

**Percent of ND:** 100

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	0.000	mg/L per year
Lower Confidence Limit of Slope, M1:	0.000	mg/L per year
Upper Confidence Limit of Slope, M2+1:	0.000	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	0.000
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 20

<b>Location ID:</b> MW-LF-04	<b>Parameter Code:</b> 00945
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Sulfate, tot
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> mg/L
<b>Option for LT Points:</b> > 50% to <= 100 % Substitute PQL	<b>Percent of ND:</b> 78

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	-0.047	mg/L per year
Lower Confidence Limit of Slope, M1:	-0.425	mg/L per year
Upper Confidence Limit of Slope, M2+1:	0.000	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	-1.160
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None



## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 21

<b>Location ID:</b> MW-LF-04	<b>Parameter Code:</b> 00515
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Total Dissolved Solids
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> mg/L
<b>Option for LT Points:</b> 0% to <= 15% Substitute PQL	<b>Percent of ND:</b> 0

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	18.552	mg/L per year
Lower Confidence Limit of Slope, M1:	2.470	mg/L per year
Upper Confidence Limit of Slope, M2+1:	28.914	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	1.887
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	Upward

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 22

<b>Location ID:</b> MW-LF-05	<b>Parameter Code:</b> 01022
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Boron, total
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> mg/L
<b>Option for LT Points:</b> > 50% to <= 100 % Substitute PQL	<b>Percent of ND:</b> 100

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	0.000	mg/L per year
Lower Confidence Limit of Slope, M1:	0.000	mg/L per year
Upper Confidence Limit of Slope, M2+1:	0.000	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	0.000
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 23

<b>Location ID:</b> MW-LF-05	<b>Parameter Code:</b> 00916
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Calcium, Total
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> ug/L
<b>Option for LT Points:</b> 0% to <= 15% Substitute PQL	<b>Percent of ND:</b> 0

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	0.328	ug/L per year
Lower Confidence Limit of Slope, M1:	0.200	ug/L per year
Upper Confidence Limit of Slope, M2+1:	0.569	ug/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	1.981
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	Upward

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 24

**Location ID:** MW-LF-05

**Parameter Code:** 00940

**Confidence Level:** 0.95

**Parameter:** Chloride, tot

**Date Range:** 05/12/2016 to 09/25/2017

**Units:** mg/L

**Option for LT Points:** 0% to <= 15% Substitute PQL

**Percent of ND:** 0

---

Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	1.51	mg/L per year
Lower Confidence Limit of Slope, M1:	1.25	mg/L per year
Upper Confidence Limit of Slope, M2+1:	1.81	mg/L per year

Non-parametric Mann-Kendall Test for Trend

S Statistic: 3.44

Z test: 1.64

At the 1.0 % Confidence Level (One-Sided Test): Upward

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 25

<b>Location ID:</b> MW-LF-05	<b>Parameter Code:</b> 00400
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Field pH
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> S.U.
<b>Option for LT Points:</b> 0% to <= 15% Substitute PQL	<b>Percent of ND:</b> 0

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	-0.567	S.U. per year
Lower Confidence Limit of Slope, M1:	-0.689	S.U. per year
Upper Confidence Limit of Slope, M2+1:	0.326	S.U. per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	-0.629
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 26

**Location ID:** MW-LF-05

**Parameter Code:** 00951

**Confidence Level:** 0.95

**Parameter:** Fluoride, total

**Date Range:** 05/12/2016 to 09/25/2017

**Units:** mg/L

**Option for LT Points:** > 50% to <= 100 % Substitute PQL

**Percent of ND:** 100

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	0.000	mg/L per year
Lower Confidence Limit of Slope, M1:	0.000	mg/L per year
Upper Confidence Limit of Slope, M2+1:	0.000	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	0.000
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 27

<b>Location ID:</b> MW-LF-05	<b>Parameter Code:</b> 00945
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Sulfate, tot
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> mg/L
<b>Option for LT Points:</b> > 50% to <= 100 % Substitute PQL	<b>Percent of ND:</b> 100

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	0.000	mg/L per year
Lower Confidence Limit of Slope, M1:	0.000	mg/L per year
Upper Confidence Limit of Slope, M2+1:	0.571	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	1.347
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

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### **Post Hoc Trend Analysis**

Run Id: 28

<b>Location ID:</b> MW-LF-05	<b>Parameter Code:</b> 00515
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Total Dissolved Solids
<b>Date Range:</b> 05/12/2016 to 09/25/2017	<b>Units:</b> mg/L
<b>Option for LT Points:</b> 0% to <= 15% Substitute PQL	<b>Percent of ND:</b> 0

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	10.607	mg/L per year
Lower Confidence Limit of Slope, M1:	4.829	mg/L per year
Upper Confidence Limit of Slope, M2+1:	26.296	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	2.189
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	Upward



## Cope Station Theil Sen Mann-Kendall Trend Analysis

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### **Post Hoc Trend Analysis**

Run Id: 29

<b>Location ID:</b> MW-LF-06	<b>Parameter Code:</b> 01022
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Boron, total
<b>Date Range:</b> 05/12/2016 to 09/26/2017	<b>Units:</b> mg/L
<b>Option for LT Points:</b> > 50% to <= 100 % Substitute PQL	<b>Percent of ND:</b> 100

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	0.000	mg/L per year
Lower Confidence Limit of Slope, M1:	0.000	mg/L per year
Upper Confidence Limit of Slope, M2+1:	0.000	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	0.000
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

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### **Post Hoc Trend Analysis**

Run Id: 30

<b>Location ID:</b> MW-LF-06	<b>Parameter Code:</b> 00916
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Calcium, Total
<b>Date Range:</b> 05/12/2016 to 09/26/2017	<b>Units:</b> ug/L
<b>Option for LT Points:</b> 0% to <= 15% Substitute PQL	<b>Percent of ND:</b> 0

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	-0.371	ug/L per year
Lower Confidence Limit of Slope, M1:	-0.542	ug/L per year
Upper Confidence Limit of Slope, M2+1:	-0.137	ug/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	-2.189
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	Downward

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 31

**Location ID:** MW-LF-06

**Parameter Code:** 00940

**Confidence Level:** 0.95

**Parameter:** Chloride, tot

**Date Range:** 05/12/2016 to 09/26/2017

**Units:** mg/L

**Option for LT Points:** 0% to <= 15% Substitute PQL

**Percent of ND:** 0

---

Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	-0.37	mg/L per year
Lower Confidence Limit of Slope, M1:	-0.75	mg/L per year
Upper Confidence Limit of Slope, M2+1:	-0.10	mg/L per year

Non-parametric Mann-Kendall Test for Trend

S Statistic:	-1.98
Z test:	1.64
At the 1.0 % Confidence Level (One-Sided Test):	Downward

## Cope Station Theil Sen Mann-Kendall Trend Analysis

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### **Post Hoc Trend Analysis**

Run Id: 32

<b>Location ID:</b> MW-LF-06	<b>Parameter Code:</b> 00400
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Field pH
<b>Date Range:</b> 05/12/2016 to 09/26/2017	<b>Units:</b> S.U.
<b>Option for LT Points:</b> 0% to <= 15% Substitute PQL	<b>Percent of ND:</b> 0

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	-0.190	S.U. per year
Lower Confidence Limit of Slope, M1:	-0.579	S.U. per year
Upper Confidence Limit of Slope, M2+1:	0.181	S.U. per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	-0.636
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

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### **Post Hoc Trend Analysis**

Run Id: 33

**Location ID:** MW-LF-06

**Parameter Code:** 00951

**Confidence Level:** 0.95

**Parameter:** Fluoride, total

**Date Range:** 05/12/2016 to 09/26/2017

**Units:** mg/L

**Option for LT Points:** > 50% to <= 100 % Substitute PQL

**Percent of ND:** 100

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	0.000	mg/L per year
Lower Confidence Limit of Slope, M1:	0.000	mg/L per year
Upper Confidence Limit of Slope, M2+1:	0.000	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	0.000
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 34

<b>Location ID:</b> MW-LF-06	<b>Parameter Code:</b> 00945
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Sulfate, tot
<b>Date Range:</b> 05/12/2016 to 09/26/2017	<b>Units:</b> mg/L
<b>Option for LT Points:</b> > 50% to <= 100 % Substitute PQL	<b>Percent of ND:</b> 100

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	0.000	mg/L per year
Lower Confidence Limit of Slope, M1:	0.000	mg/L per year
Upper Confidence Limit of Slope, M2+1:	0.571	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	1.347
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

## Cope Station Theil Sen Mann-Kendall Trend Analysis

---

### **Post Hoc Trend Analysis**

Run Id: 35

<b>Location ID:</b> MW-LF-06	<b>Parameter Code:</b> 00515
<b>Confidence Level:</b> 0.95	<b>Parameter:</b> Total Dissolved Solids
<b>Date Range:</b> 05/12/2016 to 09/26/2017	<b>Units:</b> mg/L
<b>Option for LT Points:</b> 0% to <= 15% Substitute PQL	<b>Percent of ND:</b> 0

---

#### Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:	-1.309	mg/L per year
Lower Confidence Limit of Slope, M1:	-8.789	mg/L per year
Upper Confidence Limit of Slope, M2+1:	14.470	mg/L per year

#### Non-parametric Mann-Kendall Test for Trend

S Statistic:	-0.210
Z test:	1.645
At the 1.0 % Confidence Level (One-Sided Test):	None

**Cope Station**  
**Theil Sen Mann-Kendall Trend Analysis**