

# 2017 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

### **EPA CCR RULE COMPLIANCE**

# SOUTH CAROLINA ELECTRIC & GAS: Wateree Station: Ash Pond

January 2018

#### Prepared by:

No. 1178

CAROLO CAROLO

Brian S. Boutin, PG
Nautilus Geologic Consulting, PLLC

CAROL AND ESSION OF THE STREET OF THE STREET

Stefan Bray, PE Garrett & Moore, Inc.

### Prepared for:

South Carolina Electric & Gas Company 220 Operation Way Mail Code C221 Cayce, SC 29033



#### **Table of Contents**

O O O O O O O O O O O O O O O O O O O	2
2.0 GROUNDWATER MONITORING WELL SYSTEM	
3.0 GROUNDWATER MONITORING	3
3.1 Groundwater Sampling	
3.2 Results of Field and Laboratory Analyses of Groundwater Samples	
3.3 Assessment Monitoring	
4.0 KEY PROJECT ACTIVITIES FOR 2018	

#### **Figures**

- 1 Site Location Map: Wateree Generating Station
- 2 Site Map: Wateree Generating Station

#### **Appendices**

- A Results of Field and Laboratory Analyses of Groundwater Samples
- B Statistical Analysis of Detection Monitoring Groundwater Quality Results



#### 1.0 INTRODUCTION

This document presents the 2017 Annual Groundwater Monitoring and Corrective Action report for the Ash Pond at South Carolina Electric & Gas (SCE&G) Wateree Generating Station in Wateree, Richland County, South Carolina in accordance with 40 CFR Part 257.90 (e). The Ash Pond 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):

- A facility map (aerial image) showing the Ash Pond and all background (or upgradient) and downgradient monitoring wells, including the well identification numbers, that are part of the groundwater monitoring program for the Ash Pond;
- 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

Five Type II groundwater monitoring wells (designated MW-AP-01 through MW-AP-05) were installed and developed at Wateree Station Ash Pond in March 2016 to serve as EPA CCR Rule Compliance monitoring wells. Rising head permeability (slug) tests were conducted at the new monitoring wells, as well as at existing monitoring wells MW-AP-01A and MW-AP-08, in May 2016. A site location map is presented as **Figure 1** and a site map showing the locations and designations of the monitoring wells at Wateree Station is presented as **Figure 2**. A South Carolina licensed well driller with Terracon, Inc. of Columbia, South Carolina (SC License #2116) performed the drilling and monitoring well installations. 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.

The five Type II groundwater monitoring wells were installed to monitor groundwater quality in the vicinity of the Ash Pond in compliance with the groundwater monitoring requirements of the US EPA CCR Rule (40 CFR Part 257.93). In addition, existing monitoring wells MW-AP-01A and MW-AP-08, which are also used for NPDES and South Carolina Department of Health and Environmental Control (SCDHEC) landfill groundwater monitoring compliance, are included as part of the monitoring well network for groundwater monitoring, as is monitoring well MW-FGD-01. Monitoring wells MW-AP-01A and MW-FGD-01 serve as up-gradient wells to monitor the quality of background groundwater in the surficial aquifer entering the area of the Ash Pond. The remaining monitoring wells (MW-AP-01 through MW-AP-05, and MW-AP-08) serve as down gradient wells to monitor the quality of groundwater down gradient of the Ash Pond.



#### 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-AP-01A, MW-FGD-01, MW-AP-01 through MW-AP-05, and MW-AP-08 beginning in May 2016 and ending in July 2017. Groundwater samples were collected from the monitoring wells every other month throughout the monitoring period in accordance with the stipulations of the *Groundwater Sampling and Analysis Plan* for the Ash Pond (May 2016; revised July 2016 and October 2016). One groundwater sample was collected for analysis 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 2017 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-AP-01A, MW-FGD-01, MW-AP-01 through MW-AP-05, and MW-AP-08. 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).

#### 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 background monitoring wells MW-AP-01A and MW-FGD-01, as well as at compliance monitoring wells MW-AP-05 and MW-AP-08 consistently falls below the EPA CCR Rule standard range of 6.5 to 8.5 standard units (generally within the range of 4.7 to 6.1 standard units). The pH of the groundwater at monitoring wells MW-AP-01 through MW-AP-04 mostly falls within the EPA CCR Rule standard



range, but can vary to below the lower end of the range. 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).

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 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 concentrations of boron, chloride, fluoride, sulfate and TDS in the groundwater samples collected from compliance monitoring wells MW-AP-01, MW-AP-02 and MW-AP-03, the concentrations of boron, chloride, fluoride and TDS in the groundwater sample collected from compliance monitoring well MW-AP-04, and the concentrations of chloride, fluoride, sulfate and TDS in the groundwater samples collected from compliance monitoring wells MW-AP-05 and MW-AP-08 show statistically significant increases over background concentrations (as determined from the data for groundwater samples collected from background monitoring wells MW-AP-01A and MW-FGD-01). No other statistically significant increases over background concentrations were observed for the CCR Rule Appendix III constituents in the groundwater samples collected from the monitoring wells during the September 2017 Detection Monitoring event.

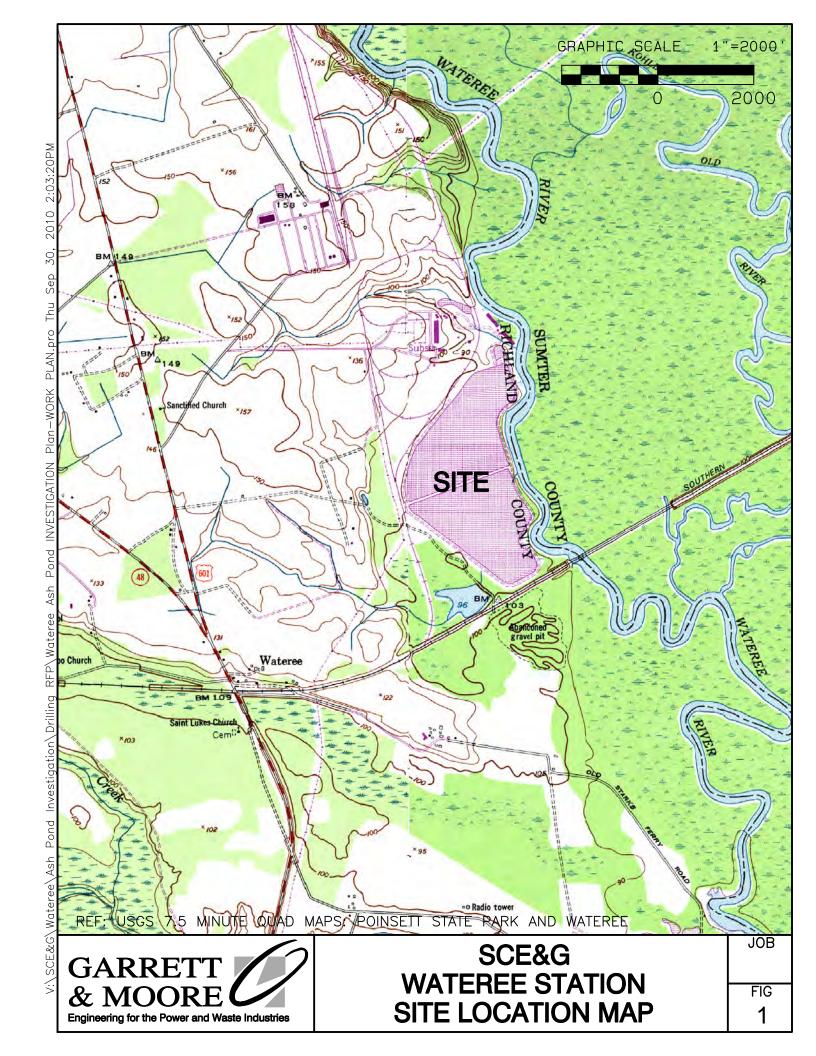
#### 3.3 Assessment Monitoring

The results of the September 2017 Detection Monitoring event indicate statistically significant increases in the concentrations of multiple EPA CCR Rule Appendix III constituents relative to background concentrations in groundwater at all down gradient compliance monitoring wells. Consequently, in accordance with 40 CFR Part 257.95, SCE&G intends to conduct Assessment Monitoring at all EPA CCR Rule monitoring wells associated with the Ash Pond prior to April 15, 2018. The Assessment Monitoring will include analysis of groundwater samples for all EPA CCR Rule Appendix III and Appendix IV constituents.



#### 4.0 KEY PROJECT ACTIVITIES FOR 2018

The initial Assessment Monitoring event will be completed by April 15, 2018. In accordance with 40 CFR Part 257.95 (d) (1), within 90 days following receipt of the initial Assessment Monitoring, a subsequent groundwater sampling event will occur at all of the EPA CCR Rule monitoring wells associated with the Ash Pond and analyzed for all constituents in Appendix III of the Rule, as well as all constituents in Appendix IV of the Rule that are detected in the initial Assessment Monitoring event. In addition, groundwater protection standards will be established in accordance with 40 CFR Part 257.95 (h) for all Appendix IV constituents detected during the two assessment monitoring events referenced above. Any further actions taken will depend on whether the concentrations of Appendix IV constituents detected during the two Assessment Monitoring events exceed the established groundwater protection standards and will follow the stipulations provided in 40 CFR Part 257.95 (e), (f) and (g).





**EPA CCR Rule Compliance Groundwater Monitoring Wells** 

#### **Class Three Landfill**

- Existing well used for background and down gradient water quality monitoring
- Well used for down gradient water quality monitoring
- Additional background monitoring well

#### **FGD Wastewater Pond**

- Background and down gradient monitoring wells
- Additional background monitoring well

#### Ash Pond 1

- Existing well used for background and down gradient water quality monitoring
- Well used for down gradient water quality monitoring

Nautilus Geologic Consulting, PLLC

**SCE&G WATEREE STATION** 

CCR Rule Compliance Groundwater Monitoring Wells JOB NUMBER

SHEET

2



#### **APPENDIX A**

Results of Field and Laboratory Analyses of Groundwater Samples

## SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL GROUND-WATER MONITORING REPORT

Facility: Wateree Station		Permi	t No.:	County: Richland
Date Sampled: 05/11/2016		_	Time Sampled:	12:00:00PM
year-month-day (N	umerical)			
			STATION NUMBERS	
PARAMETER NUMBER	MW-AP-01A	MW-FGD-01		
NAME Lab. Certificate No.	32006	32006		
Field pH S.U.	4.740	3.440		
Field Sp. Conductivity micromhos/cm	51.000	33.000		
Field Turbidity NTU	0.70	5.50		
ORP mV	198.500	227.300		
Oxygen, dissolved mg/L	3.400	4.470		
Temp (Celcius) degrees C	20.890	21.350		
Water level elevation ft	115.56	117.30		

Date:

Authorized Release By:

## SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL GROUND-WATER MONITORING REPORT

Facility: Wateree Station		Perr	nit No.:	County: Richland		
Date Sampled: 05/11/2016		<u> </u>	Time Sampled: 12:00:00PM			
year-month-day (	Numerical)					
			STATION	NNUMBERS		
PARAMETER NUMBER	MW-AP-01	MW-AP-02	MW-AP-03	MW-AP-04	MW-AP-05	MW-AP-08
NAME Lab. Certificate No.	32006	32006	32006	32006	32006	32006
Field pH S.U.	6.170	5.950	6.260	6.050	6.060	6.020
Field Sp. Conductivity micromhos/cm	655.000	638.000	603.000	770.000	510.000	537.000
Field Turbidity NTU	1.10	9.10	4.10	8.10	3.10	50.00
ORP mV	-85.100	-55.500	-95.000	-60.500	-27.400	-10.200
Oxygen, dissolved mg/L	0.360	0.170	0.220	0.170	0.290	0.140
Temp (Celcius) degrees C	20.840	22.200	22.640	22.170	23.750	22.310
Water level elevation ft	89.46	87.65	88.78	88.65	84.98	85.28

Date:

Authorized Release By:

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

## Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC Client SDG: 397457 GEL Work Order: 397457

#### 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.

Jack N Cook Reviewed by

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

## **Certificate of Analysis**

Project:

Client ID:

Report Date: May 27, 2016

SCEG01716C

84.5

(15%-125%)

GEEL003

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: MW-1A Sample ID: 397457001 Matrix: Ground Water

Collect Date: 11-MAY-16 14:25 14-MAY-16 Receive Date: Client Collector:

Parameter	Qualifier	Result	DL	RL	Units	DF Analyst Date	Time Batch	Method
Ion Chromatography								
SW846 9056A Anion	s "As Received	<b>!</b> "						
Fluoride	U	ND	0.033	0.100	mg/L	1 MAR1 05/16/16	2239 1567543	1
Metals Analysis-ICP-	MS							
SW846 3005A/6020A	A Liquid "As Re	eceived"						
Lithium	U	ND	2.00	10.0	ug/L	1 BCD1 05/19/16	1442 1567595	2
Rad Gas Flow Propor	tional Counting	ŗ						
GFPC, Ra228, Liquid	l "As Received"	'						
Radium-228	U	ND	1.96	3.00	pCi/L	AXM6 05/24/16	1458 1567555	3
Rad Radium-226								
Lucas Cell, Ra226, lie	quid "As Receiv	ved"						
Radium-226		1.15	0.532	1.00	pCi/L	LXP1 05/23/16	0810 1568375	4
The following Prep M	lethods were pe	erformed:						
Method	Description	1		Analyst	Date	Time Prep Batc	h	
SW846 3005A	ICP-MS 3005	A PREP		JP1	05/16/16	1725 1567594		

GFPC, Ra228, Liquid "As Received"

The following A	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/Trace	er Recovery Test	Result Nominal Recovery% Acceptable Limits						

#### **Notes:**

Barium-133 Tracer

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

**Certificate of Analysis** 

Project:

Client ID:

Report Date: May 27, 2016

SCEG01716C

54

(15%-125%)

GEEL003

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: MW-8
Sample ID: 397457002
Matrix: Ground Water

Collect Date: 11-MAY-16 14:20
Receive Date: 14-MAY-16
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	DF Anal	yst Date	Time Batch	Method
Ion Chromatography									
SW846 9056A Anions	s "As Received	."							
Fluoride		0.475	0.033	0.100	mg/L	1 MAR	1 05/16/16	2311 1567543	1
Metals Analysis-ICP-	MS								
SW846 3005A/6020A	Liquid "As Re	eceived"							
Lithium		13.8	2.00	10.0	ug/L	1 BCD	05/19/16	1510 1567595	2
Rad Gas Flow Proport	tional Counting	5							
GFPC, Ra228, Liquid	"As Received"	'							
Radium-228	U	ND	3.18	3.00	pCi/L	AXM	6 05/24/16	1458 1567555	3
Rad Radium-226									
Lucas Cell, Ra226, liq	uid "As Receiv	ved"							
Radium-226		0.765	0.551	1.00	pCi/L	LXP1	05/23/16	$0810 \ 1568375$	4
The following Prep M	lethods were pe	erformed:							
Method	Description	1		Analyst	Date	Time 1	Prep Batch	l	
SW846 3005A	ICP-MS 3005	A PREP		JP1	05/16/16	1725	1567594		

The following Analytical Methods were performed:

GFPC, Ra228, Liquid "As Received"

The following	That y treat wrethous were performed.							
Method	Description	Description Analyst Comments						
1	SW846 9056A		-					
2	SW846 3005A/6020A							
3	EPA 904.0/SW846 9320 Modified							
4	EPA 903.1 Modified							
Surrogate/Trace	er Recovery Test	Result	Nominal	Recoverv%	Acceptable Limits			

Notes:

Barium-133 Tracer

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

## **Certificate of Analysis**

Project:

Client ID:

Report Date: May 27, 2016

SCEG01716C

GEEL003

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: API-05
Sample ID: 397457003
Matrix: Ground Water
Collect Date: 11-MAY-16 15:52

Receive Date: 14-MAY-16

Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	DF Ar	nalyst Date	Time Batch	Method
Ion Chromatograp	ohy								
EPA300.0 Fluorio	de in Liquid "As Re	eceived"							
Fluoride	J	0.0924	0.033	0.100	mg/L	1 M.	AR1 05/16/16	2343 1567543	1
Metals Analysis-I	CP-MS								
200.8/200.2 NPD	DES Metals "As Re	ceived"							
Lithium	U	ND	2.00	10.0	ug/L	1 BC	CD1 05/19/16	1702 1567593	3 2
Rad Gas Flow Pro	oportional Counting	g							
GFPC, Ra228, Li	quid "As Received	"							
Radium-228	U	ND	1.42	3.00	pCi/L	A	XM6 05/24/16	1458 1567555	3
Rad Radium-226									
Lucas Cell, Ra22	6, liquid "As Recei	ved"							
Radium-226	_	6.17	0.744	1.00	pCi/L	LX	XP1 05/25/16	1030 1567603	3 4
The following Pro	ep Methods were p	erformed:							
Method	Description	n		Analyst	Date	Time	Prep Batcl	1	_
EPA 200.2	ICP-MS 200.	2 PREP		JP1	05/16/16	1800	1567592		

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	•
2	EPA 200.8 SC_NPDES	

EPA 904.0/SW846 9320 Modified EPA 903.1 Modified

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			84.3	(15%-125%)

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

**Certificate of Analysis** 

Project:

Client ID:

Report Date: May 27, 2016

SCEG01716C

GEEL003

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: API-01 Sample ID: 397457011 Matrix: Ground Water Collect Date: 11-MAY-16 10:37

Receive Date: 14-MAY-16 Collector: Client

Qualifier DL RL Units Parameter Result DF Analyst Date Time Batch Method Ion Chromatography EPA300.0 Fluoride in Liquid "As Received" 0.033 0.100 Fluoride 0.329 mg/L 1 MAR1 05/17/16 0957 1567544 1 Metals Analysis-ICP-MS 200.8/200.2 NPDES Metals "As Received" Lithium ND 2.00 10.0 ug/L 1 BCD1 05/19/16 1740 1567593 2 Rad Gas Flow Proportional Counting GFPC, Ra228, Liquid "As Received" Radium-228 ND 1.66 3.00 pCi/L AXM6 05/24/16 1500 1567555 3 Rad Radium-226 Lucas Cell, Ra226, liquid "As Received" Radium-226 1.76 0.812 1.00 pCi/L LXP1 05/22/16 1020 1567603 4 The following Prep Methods were performed: Method Date Prep Batch Description Analyst Time EPA 200.2 ICP-MS 200.2 PREP JP1 05/16/16 1800 1567592

The following Analytical Methods were performed:

Method	Description	Analyst Comments	
1	SW846 9056A	•	
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"

74.3 (15%-125%)

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

**Certificate of Analysis** 

Project:

Client ID:

Report Date: May 27, 2016

SCEG01716C

67.9

(15%-125%)

GEEL003

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: API-02 Sample ID: 397457012 Matrix: Ground Water Collect Date: 11-MAY-16 12:34

Receive Date: 14-MAY-16

Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	DF An	alyst Date	Time Batch	Method
Ion Chromatograp	ohy								
EPA300.0 Fluorid	le in Liquid "As Re	eceived"							
Fluoride	-	0.293	0.033	0.100	mg/L	1 M	AR1 05/17/16	1132 1567544	1
Metals Analysis-I	CP-MS								
200.8/200.2 NPD	ES Metals "As Red	ceived"							
Lithium		16.5	2.00	10.0	ug/L	1 BC	CD1 05/19/16	1744 1567593	2
Rad Gas Flow Pro	portional Counting	g							
GFPC, Ra228, Lic	quid "As Received"	'							
Radium-228	U	ND	1.52	3.00	pCi/L	ΑΣ	XM6 05/24/16	1500 1567555	3
Rad Radium-226									
Lucas Cell, Ra226	6, liquid "As Receiv	ved"							
Radium-226	•	1.83	0.757	1.00	pCi/L	LX	XP1 05/22/16	1020 1567603	4
The following Pre	ep Methods were pe	erformed:							
Method	Description	1		Analyst	Date	Time	Prep Batcl	1	
EPA 200.2	ICP-MS 200.	2 PREP		JP1	05/16/16	1800	1567592		
		_							

The following Analytical Methods were performed:

GFPC, Ra228, Liquid "As Received"

Method	Description		Analyst Co	omments	
1	SW846 9056A				
2	EPA 200.8 SC_NPDES				
3	EPA 904.0/SW846 9320 Modified				
4	EPA 903.1 Modified				
Surrogate/Trace	r Recovery Test	Result	Nominal	Recovery%	Acceptable Limits

Notes:

Barium-133 Tracer

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

**Certificate of Analysis** 

Project:

Client ID:

Report Date: May 27, 2016

SCEG01716C

GEEL003

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: API-99
Sample ID: 397457013
Matrix: Ground Water

Collect Date: 11-MAY-16 12:00
Receive Date: 14-MAY-16
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	DF Analyst Date	Time Batch	Method		
Ion Chromatography										
EPA300.0 Fluoride in	Liquid "As Re	ceived"								
Fluoride	-	0.342	0.033	0.100	mg/L	1 MAR1 05/17/16	1204 1567544	1		
Metals Analysis-ICP-	Metals Analysis-ICP-MS									
200.8/200.2 NPDES	Metals "As Red	ceived"								
Lithium	U	ND	2.00	10.0	ug/L	1 BCD1 05/19/16	1747 1567593	2		
Rad Gas Flow Proport	tional Counting	ŗ								
GFPC, Ra228, Liquid	"As Received"	'								
Radium-228	U	ND	1.51	3.00	pCi/L	AXM6 05/24/16	1500 1567555	3		
Rad Radium-226										
Lucas Cell, Ra226, lic	quid "As Recei	ved"								
Radium-226	_	1.44	0.777	1.00	pCi/L	LXP1 05/22/16	1020 1567603	4		
The following Prep M	lethods were pe	erformed:								
Method	Description	1		Analyst	Date	Time Prep Batcl	1			
EPA 200.2	ICP-MS 200.	2 PREP		JP1	05/16/16	1800 1567592				

The following Analytical Methods were performed:

1110 101101118 .	and from the discussion of the periodical									
Method	Description	Description Analyst Comments								
1	SW846 9056A		-							
2	EPA 200.8 SC_NPDES									
3	EPA 904.0/SW846 9320 Modified									
4	EPA 903.1 Modified									
Surrogate/Trace	er Recovery Test	Result	Nominal	Recoverv%	Acceptable Limits					

Barium-133 Tracer GFPC, Ra228, Liquid "As Received" 89.4 (15%-125%)

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

## **Certificate of Analysis**

Project:

Client ID:

Report Date: May 27, 2016

SCEG01716C

GEEL003

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: API-03 Sample ID: 397457014 Matrix: Ground Water

Collect Date: 11-MAY-16 13:50 Receive Date: 14-MAY-16 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	DF Analyst Date	Time Batch	Method
Ion Chromatography								
EPA300.0 Fluoride in	n Liquid "As Re	eceived"						
Fluoride		0.745	0.033	0.100	mg/L	1 MAR1 05/17/16	1236 1567544	1
Metals Analysis-ICP-MS								
200.8/200.2 NPDES	Metals "As Red	ceived"						
Lithium		91.5	2.00	10.0	ug/L	1 BCD1 05/19/16	1751 1567593	2
Rad Gas Flow Propor	tional Counting	3						
GFPC, Ra228, Liquid	l "As Received"	•						
Radium-228	U	ND	1.73	3.00	pCi/L	AXM6 05/24/16	1500 1567555	3
Rad Radium-226								
Lucas Cell, Ra226, lie	quid "As Recei	ved"						
Radium-226		2.00	0.514	1.00	pCi/L	LXP1 05/22/16	1020 1567603	4
The following Prep Methods were performed:								
Method	Description	n		Analyst	Date	Time Prep Batc	h	
EPA 200.2	ICP-MS 200.	2 PREP		JP1	05/16/16	1800 1567592		

The following Analytical Methods were performed:

Method	Description		Analyst Co	omments	
1	SW846 9056A		-		
2	EPA 200.8 SC_NPDES				
3	EPA 904.0/SW846 9320 Modified				
4	EPA 903.1 Modified				
Surrogate/Tracer Re	covery Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			88.6	(15%-125%)

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

**Certificate of Analysis** 

Project:

Client ID:

Report Date: May 27, 2016

SCEG01716C

GEEL003

Company: Address:

GEL Engineering, LLC

2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: API-04

Sample ID:

397457015

Matrix:

Ground Water

Collect Date: Receive Date: 11-MAY-16 15:17 14-MAY-16

Collector:

Client

Parameter	Qualifier	Result	DL	RL	Units	DF A	nalyst Date	Time Batch	Method
Ion Chromatograp	ohy								
EPA300.0 Fluorio	de in Liquid "As Re	eceived"							
Fluoride	•	0.262	0.033	0.100	mg/L	1 M	IAR1 05/17/16	1308 1567544	1
Metals Analysis-I	CP-MS								
200.8/200.2 NPD	DES Metals "As Red	ceived"							
Lithium	U	ND	2.00	10.0	ug/L	1 B	CD1 05/19/16	1754 1567593	2
Rad Gas Flow Proportional Counting									
GFPC, Ra228, Li	quid "As Received'	"							
Radium-228	•	3.14	1.62	3.00	pCi/L	A	XM6 05/24/16	1500 1567555	3
Rad Radium-226									
Lucas Cell, Ra22	6, liquid "As Receiv	ved"							
Radium-226	•	1.22	0.761	1.00	pCi/L	L	XP1 05/22/16	1020 1567603	4
The following Prep Methods were performed:									
Method	Description	n		Analyst	Date	Time	Prep Batc	h	
EPA 200.2	ICP-MS 200.	2 PREP		JP1	05/16/16	1800	1567592		
TT1 C 11 : A	1 2 137 1 1	c							

#### The following Analytical Methods were performed:

Method	Description		Analyst Co	omments	
1	SW846 9056A		-		
2	EPA 200.8 SC_NPDES				
3	EPA 904.0/SW846 9320 Modified				
4	EPA 903.1 Modified				
Surrogate/Tracer Re	covery Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			84.4	(15%-125%)

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

**Certificate of Analysis** 

Project:

Client ID:

Report Date: May 27, 2016

SCEG01716C

88.2

(15%-125%)

GEEL003

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: FGD-01 Sample ID: 397457016 Matrix: Ground Water

Collect Date: 11-MAY-16 16:52
Receive Date: 14-MAY-16
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	DF Analyst Date	Time Batch Method	
Ion Chromatography								
EPA300.0 Fluoride in	n Liquid "As Re	ceived"						
Fluoride	U	ND	0.033	0.100	mg/L	1 MAR1 05/17/16	1340 1567544 1	
Metals Analysis-ICP	-MS							
200.8/200.2 NPDES	Metals "As Rec	ceived"						
Lithium	U	ND	2.00	10.0	ug/L	1 BCD1 05/19/16	1808 1567593 2	
Rad Gas Flow Proportional Counting								
GFPC, Ra228, Liquio	d "As Received"	'						
Radium-228	U	ND	1.99	3.00	pCi/L	AXM6 05/24/16	1501 1567555 3	
Rad Radium-226								
Lucas Cell, Ra226, li	iquid "As Receiv	ved"						
Radium-226		2.32	0.719	1.00	pCi/L	LXP1 05/22/16	1050 1567603 4	
The following Prep Methods were performed:								
Method	Description	1		Analyst	Date	Time Prep Batcl	n	
EPA 200.2	ICP-MS 200.2	2 PREP		JP1	05/16/16	1800 1567592		

The following Analytical Methods were performed:

The following A	Anarytical Methods were performed:								
Method	Description	Analyst Comments							
1	SW846 9056A		-						
2	EPA 200.8 SC_NPDES								
3	EPA 904.0/SW846 9320 Modified								
4	EPA 903.1 Modified								
Surrogate/Trace	er Recovery Test	Result	Nominal	Recovery%	Acceptable Limits				

GFPC, Ra228, Liquid "As Received"

#### **Notes:**

Barium-133 Tracer

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

## **QC Summary**

GEL Engineering, LLC 2040 Savage Rd

Charleston, South Carolina

**Contact:** Robert Gardner

Workorder: 397457

Parmname			NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Ion Chromatography</b> Batch 1567	<b>y</b> 37543													
QC1203549409 Fluoride	397457010	DUP		U	ND	U	ND	mg/L	N/A			MAR1	05/17/1	16 05:02
QC1203549408 Fluoride	LCS		2.50				2.35	mg/L		93.9	(90%-110%)		05/16/1	16 22:07
QC1203549407 Fluoride	MB					U	ND	mg/L					05/16/1	16 21:35
QC1203549410 Fluoride	397457010	PS	2.50	U	ND		2.44	mg/L		96.3	(90%-110%)		05/17/1	16 05:34
Batch 1567	7544													
QC1203549413 Fluoride	397457011	DUP			0.329		0.336	mg/L	2.1 ^		(+/-0.100)	MAR1	05/17/1	16 10:29
QC1203549412 Fluoride	LCS		2.50				2.38	mg/L		95.3	(90%-110%)		05/17/1	16 09:25
QC1203549411 Fluoride	MB					U	ND	mg/L					05/17/1	16 08:53
QC1203549414 Fluoride	397457011	PS	2.50		0.329		2.70	mg/L		94.6	(90%-110%)	1	05/17/1	16 11:01
Metals Analysis - ICI Batch 156	<b>PMS</b> 7593													
QC1203549549 Lithium	397457003	DUP		U	ND	U	ND	ug/L	N/A			BCD1	05/19/1	16 17:05
QC1203549550 Lithium	397457016	DUP		U	ND	U	ND	ug/L	N/A				05/19/1	16 18:12
QC1203549548 Lithium	LCS		50.0				50.0	ug/L		100	(80%-120%)	í	05/19/1	16 16:58
QC1203549547 Lithium	MB					U	ND	ug/L					05/19/1	16 16:55
QC1203549551 Lithium	397457003	MS	50.0	U	ND		46.9	ug/L		92.5	(75%-125%)	ı	05/19/1	16 17:09
QC1203549552	397457016	MS					50.2				(75%-125%)	ı		

Page 1 of 4

Report Date: May 27, 2016

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

## **QC Summary**

Workorder: 3	97457				_			_				Page 2 of 4
Parmname			NOM		Sample	Qual	QC	Units	RPD%	REC%	Range Anlst	Date Time
Metals Analysis - IC Batch 156	<b>PMS</b> 57593											
Lithium			50.0	U	ND			ug/L		97.5		05/19/16 18:15
QC1203549553 Lithium	397457003	SDILT		U	ND	U	ND	ug/L	N/A		(0%-10%) BCD1	05/19/16 17:12
QC1203549554 Lithium	397457016	SDILT		U	ND	U	ND	ug/L	N/A		(0%-10%)	05/19/16 18:19
Batch 156	7595											
QC1203549557 Lithium	397457001	DUP		U	ND	U	ND	ug/L	N/A		BCD1	05/19/16 14:46
QC1203549556 Lithium	LCS		50.0				52.8	ug/L		106	(80%-120%)	05/19/16 14:39
QC1203549555 Lithium	MB					U	ND	ug/L				05/19/16 14:35
QC1203549558 Lithium	397457001	MS	50.0	U	ND		52.4	ug/L		102	(75%-125%)	05/19/16 14:49
QC1203549559 Lithium	397457001	SDILT		U	ND	U	ND	ug/L	N/A		(0%-10%)	05/19/16 14:56
Rad Gas Flow Batch 156	57555											
QC1203549448 Radium-228	397457008	DUP			1.63		1.69	pCi/L	3.88		(0% - 100%) AXM6	05/24/16 15:05
QC1203549449 Radium-228	LCS		46.0				38.2	pCi/L		83	(75%-125%)	05/24/16 16:33
QC1203549447 Radium-228	MB					U	0.830	pCi/L				05/24/16 15:05
<b>Rad Ra-226</b> Batch 156	57603											
QC1203549580 Radium-226	397457016	DUP			2.32		3.17	pCi/L	31.1		(0% - 100%) LXP1	05/22/16 10:50
QC1203549582 Radium-226	LCS		24.4				29.5	pCi/L		121	(75%-125%)	05/25/16 10:30
QC1203549579 Radium-226	MB					U	0.318	pCi/L				05/25/16 10:30
QC1203549581	397457016	MS										

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

#### **QC Summary**

				•/_				
Workorder: 397457								Page 3 of 4
Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range Anlst	Date Time
<b>Rad Ra-226</b> Batch 1567603								
Radium-226	122	2.32	131	pCi/L		105	(75%-125%)	05/22/16 10:50
Batch 1568375 ——								
QC1203551527 397689003 DUP Radium-226		1.02	1.04	pCi/L	1.86		(0% - 100%) LXP1	05/23/16 09:10
QC1203551529 LCS Radium-226	24.4		26.1	pCi/L		107	(75%-125%)	05/23/16 09:10
QC1203551526 MB Radium-226		U	0.190	pCi/L				05/23/16 09:10
QC1203551528 397689003 MS Radium-226	122	1.02	110	pCi/L		89	(75%-125%)	05/23/16 09:10

#### **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.
- 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

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

#### **QC Summary**

Parmname NOM Sample Qual QC Units RPD% REC% Range Anlst Date Time

- 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

397457

Workorder:

- 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.
- A 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.



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22353

Wateree NPDES Well MW 1 (NPDES)

Date & Time Sampled: May 11, 2016 11:25
Date & Time Submitted: May 12, 2016 15:00

Collected by: A.HILL Location Code: WAG01TDS

MW 1 Login Record File: 160513003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	5.64	0.50	mg/L	5/16/16 04:12	LS
pH by SM4500HB	4.82	0.00	S.U.	5/13/16 09:20	CDB
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	5/16/16 04:12	LS
Total Dissolved Solid-SM2540C	32	2.0	mg/L	5/13/16 11:45	CDB

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22354

Wateree NPDES Well MW 8 (NPDES)

Date & Time Sampled: May 11, 2016 14:20
Date & Time Submitted: May 12, 2016 15:00

Collected by: A.HILL Location Code: WAG08TDS

MW 8 Login Record File: 160513003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	18.1	0.50	mg/L	5/16/16 04:12	LS
pH by SM4500HB	5.95	0.00	S.U.	5/13/16 09:20	CDB
Holding Time of 15 minutes has been e.	xceeded.				
Sulfates by IC EPA 300.0	118	1.0	mg/L	5/16/16 04:12	LS
Total Dissolved Solid-SM2540C	382	2.0	mg/L	5/13/16 11:45	CDB

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22355

Wateree Well AP1-05 (NPDES)

Date & Time Sampled: May 11, 2016 15:50

Date & Time Submitted: May 12, 2016 15:00

Collected by: A.HILL Location Code: WAAP105TDS

AP1-05 Login Record File: 160513003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	18.9	0.50	mg/L	5/16/16 04:12	LS
pH by SM4500HB	6.03	0.00	S.U.	5/13/16 09:20	CDB
Holding Time of 15 minutes has been ex	xceeded.				
Sulfates by IC EPA 300.0	23.3	0.50	mg/L	5/16/16 04:12	LS
Total Dissolved Solid-SM2540C	325	2.0	mg/L	5/13/16 11:45	CDB



Tel: (803)217-9384 Fax: (803) 217-9911

REPORT TO:

Mike Moore C221

January 31, 2018

Sample ID: AB22360

Wateree Well AP1-01 (NPDES)

Date & Time Sampled: May 11, 2016 10:37

Date & Time Submitted: May 12, 2016 15:00

Collected by: A.HILL Location Code: WAAP101TDS

AP1-01 Login Record File: 160513003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	110	1.0	mg/L	5/16/16 04:12	LS
pH by SM4500HB	6.37	0.00	S.U.	5/13/16 09:20	CDB
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	1.05	0.50	mg/L	5/16/16 04:12	LS
Total Dissolved Solid-SM2540C	329	2.0	mg/L	5/13/16 11:45	CDB



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22361

Wateree Well AP1-02 (NPDES)

Date & Time Sampled: May 11, 2016 12:34
Date & Time Submitted: May 12, 2016 15:00

Collected by: A.HILL Location Code: WAAP102TDS

AP1-02 Login Record File: 160513003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	43.6	0.50	mg/L	5/16/16 04:12	LS
pH by SM4500HB	6.38	0.00	S.U.	5/13/16 09:20	CDB
Holding Time of 15 minutes has been e.	xceeded.				
Sulfates by IC EPA 300.0	47.1	0.50	mg/L	5/16/16 04:12	LS
Total Dissolved Solid-SM2540C	361	2.0	mg/L	5/13/16 11:45	CDB

Approved By:		
AUDIOVED DV.		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22363

Wateree Well AP1-03 (NPDES)

Date & Time Sampled: May 11, 2016 13:50

Date & Time Submitted: May 12, 2016 15:00

Collected by: A.HILL Location Code: WAAP103TDS

AP1-03 Login Record File: 160513003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	19.5	0.50	mg/L	5/16/16 04:12	LS
pH by SM4500HB	6.63	0.00	S.U.	5/13/16 09:20	CDB
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	66.9	0.50	mg/L	5/16/16 04:12	LS
Total Dissolved Solid-SM2540C	353	2.0	mg/L	5/13/16 11:45	CDB



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22364

Wateree Well AP1-04 (NPDES)

Date & Time Sampled: May 11, 2016 15:17

Date & Time Submitted: May 12, 2016 15:00

Collected by: A.HILL Location Code: WAAP104TDS

AP1-04 Login Record File: 160513003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	16.8	0.50	mg/L	5/16/16 04:12	LS
pH by SM4500HB	6.61	0.00	S.U.	5/13/16 09:20	CDB
Holding Time of 15 minutes has been ex	xceeded.				
Sulfates by IC EPA 300.0	1.17	0.50	mg/L	5/16/16 04:12	LS
Total Dissolved Solid-SM2540C	408	2.0	mg/L	5/13/16 11:45	CDB



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22365

Wateree Well FGD-01 (NPDES)

Date & Time Sampled: May 11, 2016 16:52
Date & Time Submitted: May 12, 2016 15:00

Collected by: A.HILL Location Code: WAFGD01TDS

FGD-01 Login Record File: 160513003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	3.54	0.50	mg/L	5/16/16 04:12	LS
pH by SM4500HB	5.35	0.00	S.U.	5/13/16 09:20	CDB
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	5/16/16 04:12	LS
Total Dissolved Solid-SM2540C	32	2.0	mg/L	5/13/16 11:45	CDB



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22373

Wateree NPDES Well MW 1 Total Metals (NPDES)

Date & Time Sampled: May 11, 2016 11:25

Date & Time Submitted: May 12, 2016 15:00

Collected by: A.HILL Location Code: WAG01TM

MW 1 Login Record File: 160513003

			-		
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	5/16/16 15:25	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	5/16/16 15:25	MC
Barium (CWA) 200.7	55.8	10.0	ppb	5/19/16 08:03	MC
Beryllium EPA 200.7	Less than	1.0	ppb	5/19/16 08:03	MC
Boron - EPA 200.7	Less than	1000	ppb	5/19/16 08:03	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/16/16 15:25	MC
Calcium EPA 200.7	781	100	ppb	5/19/16 08:03	MC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/16/16 15:25	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	5/16/16 15:25	MC
Lead by ICP-MS EPA 200.8	1.2	1.0	ppb	5/16/16 15:25	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/18/16 14:10	MC
Molybdenum - EPA 200.7	Less than	5.0	ppb	5/19/16 08:03	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	5/16/16 15:25	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	5/16/16 15:25	MC

Approved By:	



Tel: (803)217-9384 Fax: (803) 217-9911

REPORT TO:

Mike Moore C221

January 31, 2018

Sample ID: AB22374

Wateree NPDES Well MW 8 Total Metals (NPDES)

Date & Time Sampled: May 11, 2016 14:20
Date & Time Submitted: May 12, 2016 15:00

Collected by: A.HILL Location Code: WAG08TM

MW 8 Login Record File: 160513003

		-		
Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Less than	1.0	ppb	5/16/16 15:25	MC
4.5	1.0	ppb	5/16/16 15:25	MC
152	10.0	ppb	5/19/16 08:03	MC
3.0	1.0	ppb	5/19/16 08:03	MC
Less than	1000	ppb	5/19/16 08:03	MC
Less than	1.0	ppb	5/16/16 15:25	MC
21700	100	ppb	5/19/16 08:03	MC
1.2	1.0	ppb	5/16/16 15:25	MC
19.5	1.0	ppb	5/16/16 15:25	MC
Less than	1.0	ppb	5/16/16 15:25	MC
Less than	0.2	ppb	5/18/16 14:10	MC
Less than	5.0	ppb	5/19/16 08:03	MC
Less than	5.0	ppb	5/16/16 15:25	MC
Less than	1.0	ppb	5/16/16 15:25	MC
	Less than  4.5  152  3.0  Less than  Less than  21700  1.2  19.5  Less than  Less than  Less than  Less than	Result         Limit(MRL)           Less than         1.0           4.5         1.0           152         10.0           3.0         1.0           Less than         1000           Less than         1.0           19.5         1.0           Less than         1.0           Less than         0.2           Less than         5.0           Less than         5.0	Result         Limit(MRL)         Units           Less than         1.0         ppb           4.5         1.0         ppb           152         10.0         ppb           3.0         1.0         ppb           Less than         100         ppb           Less than         1.0         ppb           1.2         1.0         ppb           19.5         1.0         ppb           Less than         1.0         ppb           Less than         0.2         ppb           Less than         5.0         ppb           Less than         5.0         ppb	Result         Limit(MRL)         Units         Date & Time           Less than         1.0         ppb         5/16/16         15:25           4.5         1.0         ppb         5/16/16         15:25           152         10.0         ppb         5/19/16         08:03           3.0         1.0         ppb         5/19/16         08:03           Less than         1000         ppb         5/19/16         08:03           Less than         1.0         ppb         5/19/16         08:03           1.2         1.0         ppb         5/16/16         15:25           19.5         1.0         ppb         5/16/16         15:25           Less than         1.0         ppb         5/16/16         15:25           Less than         0.2         ppb         5/16/16         15:25           Less than         5.0         ppb         5/19/16         08:03           Less than         5.0         ppb         5/16/16         15:25

Approved By	<i>I</i> '.
uppioroa D	/ <del>*</del>



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22375

Wateree Well AP1-05 T Metals (NPDES)

Date & Time Sampled: May 11, 2016 15:50

Date & Time Submitted: May 12, 2016 15:00

Collected by: A.HILL Location Code: WAAP105TM

AP1-05 Login Record File: 160513003

			•		
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	5/16/16 15:25	MC
Arsenic by ICP_MS EPA 200.8	1.6	1.0	ppb	5/16/16 15:25	MC
Barium (CWA) 200.7	224	10.0	ppb	5/19/16 08:03	MC
Beryllium EPA 200.7	Less than	1.0	ppb	5/19/16 08:03	MC
Boron - EPA 200.7	Less than	1000	ppb	5/19/16 08:03	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/16/16 15:25	MC
Calcium EPA 200.7	13100	100	ppb	5/19/16 08:03	MC
Chromium by ICP_MS EPA 200.8	1.0	1.0	ppb	5/16/16 15:25	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	5/16/16 15:25	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	5/16/16 15:25	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/18/16 14:10	MC
Molybdenum - EPA 200.7	Less than	5.0	ppb	5/19/16 08:03	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	5/16/16 15:25	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	5/16/16 15:25	MC

Approved By:	



Tel: (803)217-9384 Fax: (803) 217-9911

10:37

15:00

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22380

Wateree Well AP1-01 T Metals (NPDES)

Date & Time Sampled: May 11, 2016
Date & Time Submitted: May 12, 2016

Collected by: A.HILL Location Code: WAAP101TM

AP1-01 Login Record File: 160513003

			•		
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	5/16/16 15:25	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	5/16/16 15:25	MC
Barium (CWA) 200.7	178	10.0	ppb	5/19/16 08:03	MC
Beryllium EPA 200.7	Less than	1.0	ppb	5/19/16 08:03	MC
Boron - EPA 200.7	Less than	1000	ppb	5/19/16 08:03	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/16/16 15:25	MC
Calcium EPA 200.7	38900	100	ppb	5/19/16 08:03	MC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/16/16 15:25	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	5/16/16 15:25	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	5/16/16 15:25	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/18/16 14:10	MC
Molybdenum - EPA 200.7	Less than	5.0	ppb	5/19/16 08:03	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	5/16/16 15:25	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	5/16/16 15:25	MC

Approved By	<i>I</i> '.
(pp.oroa b)	/ <del>*</del>



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22381

Wateree Well AP1-02 T Metals (NPDES)

Date & Time Sampled: May 11, 2016 12:34
Date & Time Submitted: May 12, 2016 15:00

Collected by: A.HILL Location Code: WAAP102TM

AP1-02 Login Record File: 160513003

			•		_
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	5/17/16 10:59	MC
Arsenic by ICP_MS EPA 200.8	119	1.0	ppb	5/17/16 10:59	MC
Barium (CWA) 200.7	191	10.0	ppb	5/19/16 08:03	MC
Beryllium EPA 200.7	Less than	1.0	ppb	5/19/16 08:03	MC
Boron - EPA 200.7	Less than	1000	ppb	5/19/16 08:03	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/17/16 10:59	MC
Calcium EPA 200.7	59100	100	ppb	5/19/16 08:03	MC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/17/16 10:59	MC
Cobalt by ICP_MS EPA 200.8	1.3	1.0	ppb	5/17/16 10:59	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	5/17/16 10:59	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/18/16 14:10	MC
Molybdenum - EPA 200.7	35.1	5.0	ppb	5/19/16 08:03	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	5/17/16 10:59	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	5/17/16 10:59	MC

Approved By:	



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

Mike Moore C221

**REPORT TO:** 

Sample ID: AB22383

Wateree Well AP1-03 T Metals (NPDES)

Date & Time Sampled: May 11, 2016 13:50

Date & Time Submitted: May 12, 2016 15:00

Collected by: A.HILL Location Code: WAAP103TM

AP1-03 Login Record File: 160513003

Al 1-03	Eogii Necola File. 1003 13003				
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	5/17/16 10:59	MC
Arsenic by ICP_MS EPA 200.8	1390	50.0	ppb	5/17/16 10:59	MC
Barium (CWA) 200.7	133	10.0	ppb	5/19/16 08:03	MC
Beryllium EPA 200.7	Less than	1.0	ppb	5/19/16 08:03	MC
Boron - EPA 200.7	1020	1000	ppb	5/19/16 08:03	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/17/16 10:59	MC
Calcium EPA 200.7	73900	100	ppb	5/19/16 08:03	MC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/17/16 10:59	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	5/17/16 10:59	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	5/17/16 10:59	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/18/16 14:10	MC
Molybdenum - EPA 200.7	28.1	5.0	ppb	5/19/16 08:03	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	5/17/16 10:59	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	5/17/16 10:59	MC

Approved By:	



**REPORT TO:** 

# Central Laboratory (P-08) 2102 North Lake Drive Columbia, SC 29212

Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

Mike Moore C221

Sample ID: AB22384

Wateree Well AP1-04 T Metals (NPDES)

Date & Time Sampled: May 11, 2016 15:17

Date & Time Submitted: May 12, 2016 15:00

Collected by: A.HILL Location Code: WAAP104TM

AP1-04 Login Record File: 160513003

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	5/17/16 10:59	MC
Arsenic by ICP_MS EPA 200.8	11.4	1.0	ppb	5/17/16 10:59	MC
Barium (CWA) 200.7	166	10.0	ppb	5/19/16 08:03	MC
Beryllium EPA 200.7	Less than	1.0	ppb	5/19/16 08:03	MC
Boron - EPA 200.7	2180	1000	ppb	5/19/16 08:03	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/17/16 10:59	MC
Calcium EPA 200.7	98400	100	ppb	5/19/16 08:03	MC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/17/16 10:59	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	5/17/16 10:59	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	5/17/16 10:59	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/18/16 14:10	MC
Molybdenum - EPA 200.7	Less than	5.0	ppb	5/19/16 08:03	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	5/17/16 10:59	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	5/17/16 10:59	MC



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22385

Wateree Well FGD-01 T Metals (NPDES)

Date & Time Sampled: May 11, 2016 16:52

Date & Time Submitted: May 12, 2016 15:00

Collected by: A.HILL Location Code: WAFGD01TM

FGD-01 Login Record File: 160513003

FGD-01	Login Record File. 160515005				
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	5/17/16 10:59	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	5/17/16 10:59	MC
Barium (CWA) 200.7	35.3	10.0	ppb	5/19/16 08:03	MC
Beryllium EPA 200.7	Less than	1.0	ppb	5/19/16 08:03	MC
Boron - EPA 200.7	Less than	1000	ppb	5/19/16 08:03	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/17/16 10:59	MC
Calcium EPA 200.7	359	100	ppb	5/19/16 08:03	MC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/17/16 10:59	MC
Cobalt by ICP_MS EPA 200.8	1.3	1.0	ppb	5/17/16 10:59	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	5/17/16 10:59	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/18/16 14:10	MC
Molybdenum - EPA 200.7	Less than	5.0	ppb	5/19/16 08:03	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	5/17/16 10:59	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	5/17/16 10:59	MC

Approved By:	

# SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL GROUND-WATER MONITORING REPORT

Facility:	Wateree Station		Permi	t No.:	County: Richland
Date Sampled:	07/11/2016		_	Time Sampled:	12:00:00PM
	year-month-day (N	umerical)			
				STATION NUMBERS	
PARAMETE	E R NUMBER	MW-AP-01A	MW-FGD-01		
NAME	Lab. Certificate No.	32006	32006		
Field pH S.U.		4.630	4.690		
Field Sp. Conduct	civity micromhos/cm	55.000	49.000		
Field Turbidity N	ΓU	0.94	0.71		
ORP mV		167.200	152.100		
Oxygen, dissolved	d mg/L	5.570	4.080		
Temp (Celcius) de	egrees C	24.410	25.360		
Water level elevat	tion ft	114.06	115.87		

Date:

Authorized Release By:

# SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL GROUND-WATER MONITORING REPORT

Facility: Wateree Station		Perr	nit No.:		County: Ricl	nland
Date Sampled: 07/11/2016				Time Sampled:	12:00:00PM	
year-month-o	day (Numerical)					
			STATION	N NUMBERS		
PARAMETER NUM	BER MW-AP-01	MW-AP-02	MW-AP-03	MW-AP-04	MW-AP-05	MW-AP-08
NAME Lab. Certificate	e No. 32006	32006	32006	32006	32006	32006
Field pH S.U.	6.620	6.420	6.580	6.340	5.740	5.680
Field Sp. Conductivity micromhos/cm	5.830	607.000	411.800	701.000	424.000	467.700
Field Turbidity NTU	5.30	8.60	6.90	0.95	9.87	20.60
ORP mV	-123.700	-83.700	-96.600	-50.000	-19.300	-1.100
Oxygen, dissolved mg/L	0.400	0.390	0.290	0.400	0.510	0.320
Temp (Celcius) degrees C	22.000	25.800	24.000	23.680	23.880	23.000
Water level elevation ft	87.68	85.07	86.90	85.66	82.42	82.61

Date:

Authorized Release By:

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

# Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC Client SDG: 401760 GEL Work Order: 401760

#### 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.

	Jack N	Crosh			
Reviewed by	,				

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: July 29, 2016

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: MW-1A Sample ID: 401760001

Matrix: Ground Water Collect Date: 11-JUL-16 11:00 15-JUL-16 Receive Date: Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in	n Liquid "As Re	eceived"										
Fluoride	U	ND	0.033	0.100	mg/L		1	MAR1	07/22/16	2322	1582386	1
Metals Analysis-ICP	-MS											
SW846 3005A/6020	A Liquid "As Re	eceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	SKJ	07/20/16	1931	1582806	2
Rad Gas Flow Propos	rtional Counting	2										
GFPC, Ra228, Liquio	d "As Received"	'										
Radium-228	U	ND	2.44	3.00	pCi/L			AXM6	07/27/16	1333	1582431	3
Rad Radium-226												
Lucas Cell, Ra226, li	quid "As Receiv	ved"										
Radium-226		0.915	0.322	1.00	pCi/L			LXP1	07/28/16	0830	1583314	4
The following Prep N	Methods were pe	erformed:										
Method	Description	1		Analyst	Date		Time	Pro	ep Batch			
SW846 3005A	ICP-MS 3005	SA PREP		JP1	07/18/16		1855	158	32805			

The following Analytical Methods were performed:

Method Description **Analyst Comments** EPA 300.0 2

SW846 3005A/6020A

3 EPA 904.0/SW846 9320 Modified

EPA 903.1 Modified

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

#### **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

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: July 29, 2016

Company: Address:

GEL Engineering, LLC

2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: API-01

Sample ID: 401760002

Matrix: Ground Water Collect Date: 11-JUL-16 11:20 15-JUL-16 Receive Date: Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograpl	hy											
EPA300.0 Fluoride	e in Liquid "As Re	eceived"										
Fluoride	-	0.337	0.033	0.100	mg/L		1	MAR1	07/23/16	0052	1582386	1
Metals Analysis-IC	CP-MS											
200.8/200.2 NPDI	ES Metals "As Rec	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	SKJ	07/20/16	1335	1582350	2
Rad Gas Flow Prop	portional Counting	g										
GFPC, Ra228, Liq	uid "As Received"	•										
Radium-228	U	ND	1.88	3.00	pCi/L			AXM6	07/27/16	1203	1582431	3
Rad Radium-226												
Lucas Cell, Ra226	, liquid "As Receiv	ved"										
Radium-226	•	0.921	0.425	1.00	pCi/L			LXP1	07/28/16	0830	1583314	4
The following Prep	Methods were pe	erformed:										
Method	Description	1		Analyst	Date		Time	Pr	ep Batch			
EPA 200.2	ICP-MS 200.2	2 PREP		JP1	07/15/16		1815	158	32349			
TT1 - C-11 - ' A	-14:1 M-41 d		4.									

The following Analytical Methods were performed:

Method Description **Analyst Comments** EPA 300.0

2 EPA 200.8 SC\_NPDES

3 EPA 904.0/SW846 9320 Modified

EPA 903.1 Modified

Surrogate/Tracer Recovery Test Result Nominal Recovery% Acceptable Limits Barium-133 Tracer (15%-125%) GFPC, Ra228, Liquid "As Received" 86.2

#### **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

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: July 29, 2016

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: API-99
Sample ID: 401760003
Matrix: Ground Water
Collect Date: 11-JUL-16 11:30

Receive Date: 15-JUL-16 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in	n Liquid "As Re	eceived"										
Fluoride	-	0.336	0.033	0.100	mg/L		1	MAR1	07/23/16	0122	1582386	1
Metals Analysis-ICP	-MS											
200.8/200.2 NPDES	Metals "As Red	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	SKJ	07/20/16	1336	1582350	2
Rad Gas Flow Propos	rtional Counting	3										
GFPC, Ra228, Liquio	d "As Received"	1										
Radium-228	U	ND	1.87	3.00	pCi/L			AXM6	07/27/16	1203	1582431	3
Rad Radium-226												
Lucas Cell, Ra226, li	iquid "As Recei	ved"										
Radium-226	_	0.752	0.392	1.00	pCi/L			LXP1	07/28/16	0830	1583314	4
The following Prep N	Methods were pe	erformed:										
Method	Description	n		Analyst	Date		Time	Pre	ep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		JP1	07/15/16		1815	158	32349			

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

EPA 903.1 Modified

Surrogate/Tracer Recovery Test Result Nominal Recovery% Acceptable Limits

Barium-133 Tracer GFPC, Ra228, Liquid "As Received"

64.8 (15%-125%)

#### **Notes:**

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: July 29, 2016

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: API-02
Sample ID: 401760004
Matrix: Ground Water
Collect Date: 11-JUL-16 13:00

Receive Date: 15-JUL-16 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatography	У											
EPA300.0 Fluoride i	in Liquid "As Re	eceived"										
Fluoride	•	0.320	0.033	0.100	mg/L		1	MAR1	07/23/16	0152	1582386	1
Metals Analysis-ICF	P-MS											
200.8/200.2 NPDES	S Metals "As Red	ceived"										
Lithium		17.7	2.00	10.0	ug/L	1.00	1	SKJ	07/20/16	1338	1582350	2
Rad Gas Flow Propo	ortional Counting	3										
GFPC, Ra228, Liqui	id "As Received'	"										
Radium-228		3.32	2.12	3.00	pCi/L			AXM6	07/27/16	1203	1582431	3
Rad Radium-226												
Lucas Cell, Ra226, 1	liquid "As Recei	ved"										
Radium-226	-	1.05	0.352	1.00	pCi/L			LXP1	07/28/16	0830	1583314	4
The following Prep	Methods were pe	erformed:										
Method	Description	n		Analyst	Date		Time	Pro	ep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		JP1	07/15/16		1815	158	32349			

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	·
2	EPA 200.8 SC_NPDES	

EPA 904.0/SW846 9320 Modified EPA 903.1 Modified

Surrogate/Tracer Recovery Test Result Nominal Recovery% Acceptable Limits

Barium-133 Tracer GFPC, Ra228, Liquid "As Received"

49 (15%-125%)

#### **Notes:**

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: July 29, 2016

Company: GEL Address: 2040

GEL Engineering, LLC 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: API-05
Sample ID: 401760005
Matrix: Ground Water

Collect Date: 11-JUL-16 13:20
Receive Date: 15-JUL-16
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograp	hy											
EPA300.0 Fluorid	e in Liquid "As Re	eceived"										
Fluoride	J	0.0812	0.033	0.100	mg/L		1	MAR1	07/23/16	0222	1582386	1
Metals Analysis-IO	CP-MS											
200.8/200.2 NPD	ES Metals "As Re	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	SKJ	07/20/16	1339	1582350	2
Rad Gas Flow Pro	portional Counting	g										
GFPC, Ra228, Liq	uid "As Received"	"										
Radium-228	U	ND	2.83	3.00	pCi/L			AXM6	07/27/16	1204	1582431	3
Rad Radium-226												
Lucas Cell, Ra226	, liquid "As Recei	ved"										
Radium-226	_	1.41	0.333	1.00	pCi/L			LXP1	07/28/16	0900	1583314	4
The following Pre	p Methods were pe	erformed:										
Method	Description	n		Analyst	Date		Time	Pr	ep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		JP1	07/15/16		1815	158	32349			
			_									

The following Analytical Methods were performed:

Method Description Analyst Comments

EPA 300.0

2 EPA 200.8 SC\_NPDES

3 EPA 904.0/SW846 9320 Modified

EPA 903.1 Modified

Surrogate/Tracer Recovery Test Result Nominal Recovery% Acceptable Limits

Barium-133 Tracer GFPC, Ra228, Liquid "As Received"

67.6 (15%-125%)

#### **Notes:**

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

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

**Certificate of Analysis** 

Project:

Units

Result

Nominal

Recovery%

69.8

Client ID:

PF

Report Date: July 29, 2016

Time Batch Method

Acceptable Limits

(15%-125%)

SCEG01716c

GEEL003

DF Analyst Date

Company: Address:

GEL Engineering, LLC

2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: API-03

Sample ID:

401760006

Matrix:

Parameter

Ground Water

Collect Date:

11-JUL-16 14:35 15-JUL-16

Result

Receive Date: Collector:

Client

Qualifier

Ion Chromatography												
EPA300.0 Fluoride in l	Liquid "As Rece	eived"										
Fluoride	•	0.904	0.033	0.100	mg/L		1	MAR1	07/23/16	0252	1582386	1
Metals Analysis-ICP-M	1S											
200.8/200.2 NPDES M	Ietals "As Recei	ved"										
Lithium		81.3	2.00	10.0	ug/L	1.00	1	SKJ	07/20/16	1343	1582350	2
Rad Gas Flow Proporti	onal Counting											
GFPC, Ra228, Liquid '	'As Received"											
Radium-228	U	ND	2.03	3.00	pCi/L			AXM6	07/27/16	1208	1582431	3
Rad Radium-226												
Lucas Cell, Ra226, liqu	uid "As Received	d"										
Radium-226	U	ND	0.359	1.00	pCi/L			LXP1	07/28/16	0900	1583314	4
The following Prep Me	ethods were perf	ormed:										
Method	Description		A	Analyst	Date	-	Γime	e Pr	ep Batch			
EPA 200.2	ICP-MS 200.2 P	REP	J	P1	07/15/16		1815	15	82349			
The following Analytic	cal Methods we	re performed:										
Method	Description				A	Analyst	Co	mments	S			
1	EPA 300.0					-						
2	EPA 200.8 SC_N	IPDES										
3	EPA 904.0/SW84	46 9320 Modified										
4	EPA 903.1 Modi	fied										

DL

RL

#### **Notes:**

Barium-133 Tracer

Column headers are defined as follows:

Surrogate/Tracer Recovery

DF: Dilution Factor Lc/LC: Critical Level DL: Detection Limit PF: Prep Factor MDA: Minimum Detectable Activity **RL**: Reporting Limit

Test

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

GFPC, Ra228, Liquid "As Received"

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: July 29, 2016

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: API-04 Sample ID: 401760007 Matrix: Ground Water

Collect Date: 11-JUL-16 15:00 15-JUL-16 Receive Date: Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in	n Liquid "As Re	eceived"										
Fluoride	_	0.365	0.033	0.100	mg/L		1	MAR1	07/23/16	0422	1582386	1
Metals Analysis-ICP	-MS											
200.8/200.2 NPDES	Metals "As Re	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	SKJ	07/20/16	1345	1582350	2
Rad Gas Flow Propos	rtional Counting	g										
GFPC, Ra228, Liquio	d "As Received"	"										
Radium-228	U	ND	2.05	3.00	pCi/L			AXM6	07/27/16	1203	1582431	3
Rad Radium-226												
Lucas Cell, Ra226, li	quid "As Recei	ved"										
Radium-226		1.00	0.385	1.00	pCi/L			LXP1	07/28/16	0900	1583314	4
The following Prep N	Methods were pe	erformed:										
Method	Description	n		Analyst	Date		Time	e Pr	ep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		JP1	07/15/16		1815	15	82349			

The following Analytical Methods were performed:

Method Description **Analyst Comments** EPA 300.0

2 EPA 200.8 SC\_NPDES 3

EPA 904.0/SW846 9320 Modified

EPA 903.1 Modified

Surrogate/Tracer Recovery Test Result Nominal Recovery% Acceptable Limits Barium-133 Tracer 59.4 (15%-125%) GFPC, Ra228, Liquid "As Received"

#### **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

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: July 29, 2016

Company: Address:

GEL Engineering, LLC

2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: FB-01

401760008

Sample ID: Matrix:

Ground Water

Collect Date: Receive Date: 11-JUL-16 16:15 15-JUL-16

Collector:

Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograp	ohy											
EPA300.0 Fluorid	le in Liquid "As Re	eceived"										
Fluoride	U	ND	0.033	0.100	mg/L		1	MAR1	07/23/16	0451	1582386	1
Metals Analysis-I	CP-MS											
200.8/200.2 NPD	ES Metals "As Red	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	SKJ	07/20/16	1346	1582350	2
Rad Gas Flow Pro	portional Counting	2										
GFPC, Ra228, Lic	quid "As Received'	"										
Radium-228	U	ND	2.58	3.00	pCi/L			AXM6	07/27/16	1441	1582431	3
Rad Radium-226												
Lucas Cell, Ra226	6, liquid "As Recei	ved"										
Radium-226		0.493	0.419	1.00	pCi/L			LXP1	07/28/16	0900	1583314	4
The following Pre	ep Methods were pe	erformed:										
Method	Description	n		Analyst	Date		Time	e Pr	ep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		JP1	07/15/16		1815	158	82349			
The following Ar	nalytical Methods v	were performed:										
Mathad	Description					A 1	4 C = -					

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

EPA 903.1 Modified

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			72.2	(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

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: July 29, 2016

Company:

GEL Engineering, LLC

2040 Savage Rd Address:

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: FGD-01

Sample ID:

401760009

Matrix:

Ground Water

Collect Date:

11-JUL-16 16:35

Receive Date: Collector:

15-JUL-16 Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	e Batch	Method
Ion Chromatograp	ohy											
EPA300.0 Fluorio	de in Liquid "As Re	eceived"										
Fluoride	U	ND	0.033	0.100	mg/L		1	MAR1	07/23/16	0521	1582386	1
Metals Analysis-I	CP-MS											
200.8/200.2 NPD	ES Metals "As Red	ceived"										
Lithium	J	2.23	2.00	10.0	ug/L	1.00	1	SKJ	07/20/16	1348	1582350	2
Rad Gas Flow Pro	oportional Counting	9										
GFPC, Ra228, Li	quid "As Received'	'										
Radium-228	U	ND	1.55	3.00	pCi/L			AXM6	07/27/16	1204	1582431	3
Rad Radium-226												
Lucas Cell, Ra22	6, liquid "As Receiv	ved"										
Radium-226		1.20	0.341	1.00	pCi/L			LXP1	07/28/16	0900	1583314	4
The following Pro	ep Methods were pe	erformed:										
Method	Description	n		Analyst	Date		Time	Pr	ep Batch			
EPA 200.2	ICP-MS 200.2	2 PREP		JP1	07/15/16		1815	158	82349			

### The following Analytical Methods were performed:

	<u> </u>	
Method	Description	Analyst Comments
1	EPA 300.0	·
2	EPA 200.8 SC_NPDES	
3	EPA 904.0/SW846 9320 Modified	

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

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: July 29, 2016

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: MW-8 Sample ID: 401760010

Matrix: Ground Water
Collect Date: 11-JUL-16 16:45
Receive Date: 15-JUL-16
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in	Liquid "As Re	eceived"										
Fluoride	•	0.418	0.033	0.100	mg/L		1	MAR1	07/23/16	0551	1582386	1
Metals Analysis-ICP-	MS											
SW846 3005A/6020A	Liquid "As Re	eceived"										
Lithium	_	12.1	2.00	10.0	ug/L	1.00	1	SKJ	07/20/16	1943	1582806	2
Rad Gas Flow Proport	tional Counting	3										
GFPC, Ra228, Liquid	"As Received"	"										
Radium-228	U	ND	2.25	3.00	pCi/L			AXM6	07/27/16	1204	1582431	3
Rad Radium-226												
Lucas Cell, Ra226, lic	uid "As Recei	ved"										
Radium-226		2.39	0.459	1.00	pCi/L			LXP1	07/28/16	0900	1583314	4
The following Prep M	lethods were pe	erformed:										
Method	Description	n		Analyst	Date		Time	Pr	ep Batch			
SW846 3005A	ICP-MS 3005	5A PREP		JP1	07/18/16		1855	15	82805			

The following Analytical Methods were performed:

 Method
 Description
 Analyst Comments

 1
 EPA 300.0

 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"

61.8 (15%-125%)

#### **Notes:**

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

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

# **QC Summary**

Report Date: July 29, 2016

Page 1 of 4

GEL Engineering, LLC 2040 Savage Rd

Charleston, South Carolina

**Contact:** Robert Gardner

Workorder: 401760

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 1582386 —										
QC1203586449 401760001 DUP Fluoride	U	ND	U	ND	mg/L	N/A			MAR1	07/22/16 23:52
QC1203586450 401760020 DUP Fluoride	U	ND	U	ND	mg/L	N/A				07/23/16 12:20
QC1203586448 LCS Fluoride	2.50			2.53	mg/L		101	(90%-110%)	1	07/22/16 22:52
QC1203586447 MB Fluoride			U	ND	mg/L					07/22/16 22:23
QC1203586451 401760001 PS Fluoride	2.50 U	ND		2.53	mg/L		100	(90%-110%)	1	07/23/16 00:22
QC1203586452 401760020 PS Fluoride	2.50 U	ND		2.45	mg/L		96.9	(90%-110%)	ı	07/23/16 12:50
Metals Analysis - ICPMS Batch 1582350 ——										
QC1203586364 401760011 DUP Lithium	J	2.13	J	2.13	ug/L	0.282 ^		(+/-10.0)	) SKJ	07/20/16 13:53
QC1203586362 LCS Lithium	50.0			51.1	ug/L		102	(80%-120%)	1	07/20/16 13:30
QC1203586361 MB Lithium			U	ND	ug/L					07/20/16 13:29
QC1203586367 401760011 MS Lithium	50.0 J	2.13		52.7	ug/L		101	(75%-125%)	ı	07/20/16 13:55
QC1203586370 401760011 SDILT Lithium	J	2.13	U	ND	ug/L	N/A		(0%-10%)	ı	07/20/16 13:56
Batch 1582806 —										
QC1203587432 401760010 DUP Lithium		12.1		12.1	ug/L	0.306 ^		(+/-10.0)	) SKJ	07/20/16 19:47
QC1203587431 LCS Lithium	50.0			49.0	ug/L		98.1	(80%-120%)	1	07/20/16 19:27
QC1203587430 MB				ND						

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

# **QC Summary**

Workorder: 4	01760											Page 2 of 4
Parmname			NOM	[	Sample	Qual	QC	Units	RPD%	REC%	Range Anlst	Date Time
Metals Analysis - IC Batch 158	PMS 2806											
Lithium						U		ug/L				07/20/16 19:23
QC1203587433 Lithium	401760010	MS	50.0		12.1		63.3	ug/L		102	(75%-125%) SKJ	07/20/16 19:51
QC1203587434 Lithium	401760010	SDILT			12.1	J	2.37	ug/L	1.95		(0%-10%)	07/20/16 19:59
Batch 158	2808											
QC1203587437 Lithium	401760016	DUP		U	ND	U	ND	ug/L	N/A		SKJ	07/20/16 00:13
QC1203587436 Lithium	LCS		50.0				47.6	ug/L		95.2	(80%-120%)	07/20/16 00:05
QC1203587435 Lithium	MB					U	ND	ug/L				07/20/16 00:02
QC1203587438 Lithium	401760016	MS	50.0	U	ND		49.1	ug/L		97.4	(75%-125%)	07/20/16 00:17
QC1203587439 Lithium	401760016	SDILT		U	ND	U	ND	ug/L	N/A		(0%-10%)	07/20/16 00:21
Rad Gas Flow Batch 158	2431											
QC1203586537 Radium-228	401760008	DUP		U	1.69	U	0.659	pCi/L	N/A		N/A AXM6	07/27/16 14:41
QC1203586538 Radium-228	LCS		45.0				41.5	pCi/L		92.1	(75%-125%)	07/27/16 12:07
QC1203586536 Radium-228	MB					U	1.27	pCi/L				07/27/16 12:06
<b>Rad Ra-226</b> Batch 158	3314											
QC1203588585 Radium-226	401758001	DUP			1.21		1.53	pCi/L	23.5		(0% - 100%) LXP1	07/28/16 09:35
QC1203588587 Radium-226	LCS		24.4				28.0	pCi/L		115	(75%-125%)	07/28/16 09:35
QC1203588584 Radium-226	MB					U	0.0423	pCi/L				07/28/16 09:35
QC1203588586	401758001	MS										

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

# **QC Summary**

				<u></u>					
Workorder: 401760									Page 3 of 4
Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
<b>Rad Ra-226</b> Batch 1583314									
Radium-226	122	1.21	97.2	pCi/L		78.7	(75%-125%)		07/28/16 09:35
Batch 1583315 ———									
QC1203588589 401760020 DUP Radium-226		1.12	0.989	pCi/L	12.6		(0%-20%)	LXP1	07/28/16 11:15
QC1203588591 LCS Radium-226	24.4		20.3	pCi/L		83.2	(75%-125%)		07/28/16 11:45
QC1203588588 MB Radium-226		U	0.140	pCi/L					07/28/16 10:40
QC1203588590 401760020 MS Radium-226	122	1.12	117	pCi/L		95.3	(75%-125%)		07/28/16 11:15

#### **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
- $M \qquad REMP \ Result > MDC/CL \ and < RDL$
- 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

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

# **QC Summary**

401760 Page 4 of 4 Sample Qual Parmname NOM OC Units RPD% REC% Range Anlst Date Time

- 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

Workorder:

- 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.
- 5-day BOD--The 2:1 depletion requirement was not met for this sample d
- 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 e reporting purposes
- Preparation or preservation holding time was exceeded 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.



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22909

Wateree NPDES Well MW 1 (NPDES)

Date & Time Sampled: July 11, 2016 11:00

Date & Time Submitted: July 12, 2016 15:25

Collected by: A.HILL Location Code: WAG01TDS

MW 1 Login Record File: 160712003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	5.4	0.50	ppm	7/18/16 12:05	LS
pH by SM4500HB	5.93	0.00	S.U.	7/13/16 10:28	PRC
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	less than	0.50	ppm	7/18/16 12:05	LS
Total Dissolved Solid-SM2540C	27	2.0	mg/L	7/14/16 10:28	PRC



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22910

Wateree Well AP1-01 (NPDES/CCR)

Date & Time Sampled: July 11, 2016 11:20
Date & Time Submitted: July 12, 2016 15:25

Collected by: A.HILL Location Code: WAAP101TDS

AP1-01 Login Record File: 160712003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	132	2.5	ppm	7/18/16 13:57	LS
pH by SM4500HB	6.69	0.00	S.U.	7/13/16 10:28	PRC
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	1.8	0.50	ppm	7/18/16 13:57	LS
Total Dissolved Solid-SM2540C	355.5	2.0	mg/L	7/14/16 10:28	PRC

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22912

Wateree Well AP1-02 (NPDES/CCR)

Date & Time Sampled: July 11, 2016 13:00

Date & Time Submitted: July 12, 2016 15:25

Collected by: A.HILL Location Code: WAAP102TDS

AP1-02 Login Record File: 160712003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	41	0.50	ppm	7/18/16 12:53	LS
pH by SM4500HB  Holding Time of 15 minutes has been of	6.62 exceeded.	0.00	S.U.	7/13/16 10:28	PRC
Sulfates by IC EPA 300.0	48	0.50	ppm	7/18/16 12:53	LS
Total Dissolved Solid-SM2540C	375	2.0	mg/L	7/14/16 10:28	PRC



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22913

Wateree Well AP1-05 (NPDES/CCR)

Date & Time Sampled: July 11, 2016 13:20
Date & Time Submitted: July 12, 2016 15:25

Collected by: A.HILL Location Code: WAAP105TDS

AP1-05 Login Record File: 160712003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist	
Chlorides by IC EPA 300.0	19	0.50	ppm	7/18/16 12:53	LS	
pH by SM4500HB	6.19	0.00	S.U.	7/13/16 10:28	PRC	
Holding Time of 15 minutes has been exceeded.						
Sulfates by IC EPA 300.0	4.8	0.50	ppm	7/18/16 12:53	LS	
Total Dissolved Solid-SM2540C	238	2.0	mg/L	7/14/16 10:28	PRC	



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22914

Wateree Well AP1-03 (NPDES/CCR)

Date & Time Sampled: July 11, 2016 14:35
Date & Time Submitted: July 12, 2016 15:25

Collected by: A.HILL Location Code: WAAP103TDS

AP1-03 Login Record File: 160712003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist	
Chlorides by IC EPA 300.0	18	1.0	ppm	7/18/16 16:37	LS	
pH by SM4500HB	6.90	0.00	S.U.	7/13/16 10:28	PRC	
Holding Time of 15 minutes has been exceeded.						
Sulfates by IC EPA 300.0	53	1.0	ppm	7/18/16 16:37	LS	
Total Dissolved Solid-SM2540C	281	2.0	mg/L	7/14/16 10:28	PRC	



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

REPORT TO:

Mike Moore C221

Sample ID: AB22915

Wateree Well AP1-04 (NPDES/CCR)

Date & Time Sampled: July 11, 2016 15:00

Date & Time Submitted: July 12, 2016 15:25

Collected by: A.HILL Location Code: WAAP104TDS

AP1-04 Login Record File: 160712003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist	
Chlorides by IC EPA 300.0	17	0.50	ppm	7/18/16 13:42	LS	
pH by SM4500HB	6.65	0.00	S.U.	7/13/16 10:28	PRC	
Holding Time of 15 minutes has been exceeded.						
Sulfates by IC EPA 300.0	1.1	0.50	ppm	7/18/16 13:42	LS	
Total Dissolved Solid-SM2540C	422	2.0	mg/L	7/14/16 10:28	PRC	

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22917

Wateree Well FGD-01 (NPDES/CCR)

Date & Time Sampled: July 11, 2016 16:35
Date & Time Submitted: July 12, 2016 15:25

Collected by: A.HILL Location Code: WAFGD01TDS

FGD-01 Login Record File: 160712003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist	
Chlorides by IC EPA 300.0	6.0	0.50	ppm	7/18/16 14:28	LS	
pH by SM4500HB	6.12	0.00	S.U.	7/13/16 10:28	PRC	
Holding Time of 15 minutes has been exceeded.						
Sulfates by IC EPA 300.0	less than	0.50	ppm	7/18/16 14:28	LS	
Total Dissolved Solid-SM2540C	27	2.0	mg/L	7/14/16 10:28	PRC	



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22918

Wateree Well MW 8 (NPDES/CCR)

Date & Time Sampled: July 11, 2016 16:45
Date & Time Submitted: July 12, 2016 15:25

Collected by: A.HILL Location Code: WAG08TDS

MW 8 Login Record File: 160712003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	17	2.5	ppm	7/18/16 16:52	LS
pH by SM4500HB	6.01	0.00	S.U.	7/13/16 10:28	PRC
Holding Time of 15 minutes has been of	exceeded.				
Sulfates by IC EPA 300.0	109	2.5	ppm	7/18/16 16:52	LS
Total Dissolved Solid-SM2540C	385	2.0	mg/L	7/14/16 10:28	PRC

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22889

Wateree NPDES Well MW 1 Total Metals (NPDES)

Date & Time Sampled: July 11, 2016 11:00

Date & Time Submitted: July 12, 2016 15:25

Collected by: A.HILL Location Code: WAG01TM

MW 1 Login Record File: 160712002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed A Date & T	-	Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	8/8/16	12:15	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	8/8/16	12:15	MC
Barium (CWA) 200.7	56.5	10.0	ppb	7/18/16	10:21	MC
Beryllium EPA 200.7	Less than	1.0	ppb	7/18/16	10:21	MC
Boron - EPA 200.7	Less than	1000	ppb	7/18/16	10:21	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC
Calcium EPA 200.7	781	100	ppb	7/18/16	10:21	MC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	8/8/16	12:15	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC
Lead by ICP-MS EPA 200.8	1.4	1.0	ppb	7/18/16	11:39	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	7/18/16	08:10	MC
Molybdenum - EPA 200.8	Less than	5.0	ppb	8/8/16	12:15	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	8/8/16	12:15	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC

Approved By	<i>I</i> '.
uppioroa D	/ <del>*</del>



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22890

Wateree Well AP1-01 TM (NPDES/CCR)

Date & Time Sampled: July 11, 2016 11:20
Date & Time Submitted: July 12, 2016 15:25

Collected by: A.HILL Location Code: WAAP101TM

AP1-01 Login Record File: 160712002

			-			
CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed A Date & T	_	Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	8/8/16	12:15	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	8/8/16	12:15	MC
Barium (CWA) 200.7	186	10.0	ppb	7/18/16	10:21	MC
Beryllium EPA 200.7	Less than	1.0	ppb	7/18/16	10:21	MC
Boron - EPA 200.7	1000	1000	ppb	7/18/16	10:21	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC
Calcium EPA 200.7	42400	100	ppb	7/18/16	10:21	MC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	8/8/16	12:15	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	7/18/16	08:10	MC
Molybdenum - EPA 200.8	5.4	5.0	ppb	8/8/16	12:15	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	8/8/16	12:15	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC

Approved By:	



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22892

Wateree Well AP1-02 TM (NPDES/CCR)

Date & Time Sampled: July 11, 2016 13:00

Date & Time Submitted: July 12, 2016 15:25

Collected by: A.HILL Location Code: WAAP102TM

AP1-02 Login Record File: 160712002

			-			
CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed A Date & T	-	Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	8/8/16	12:15	MC
Arsenic by ICP_MS EPA 200.8	202	1.0	ppb	8/8/16	12:15	MC
Barium (CWA) 200.7	204	10.0	ppb	7/18/16	10:21	MC
Beryllium EPA 200.7	Less than	1.0	ppb	7/18/16	10:21	MC
Boron - EPA 200.7	Less than	1000	ppb	7/18/16	10:21	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC
Calcium EPA 200.7	70700	100	ppb	7/18/16	10:21	MC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	8/8/16	12:15	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	7/18/16	08:10	MC
Molybdenum - EPA 200.8	46.9	5.0	ppb	8/8/16	12:15	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	8/8/16	12:15	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC

Approved By	<i>I</i> '.
uppioroa D	/ <del>*</del>



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22893

Wateree Well AP1-05 TM (NPDES/CCR)

Date & Time Sampled: July 11, 2016 13:20
Date & Time Submitted: July 12, 2016 15:25

Collected by: A.HILL Location Code: WAAP105TM

AP1-05 Login Record File: 160712002

			•			
CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed A Date & T	-	Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	8/8/16	12:15	MC
Arsenic by ICP_MS EPA 200.8	1.4	1.0	ppb	8/8/16	12:15	MC
Barium (CWA) 200.7	192	10.0	ppb	7/18/16	10:21	MC
Beryllium EPA 200.7	Less than	1.0	ppb	7/18/16	10:21	MC
Boron - EPA 200.7	Less than	1000	ppb	7/18/16	10:21	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC
Calcium EPA 200.7	12200	100	ppb	7/18/16	10:21	MC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	8/8/16	12:15	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	7/18/16	08:10	MC
Molybdenum - EPA 200.8	Less than	5.0	ppb	8/8/16	12:15	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	8/8/16	12:15	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC

Approved By:	



**REPORT TO:** 

# Central Laboratory (P-08) 2102 North Lake Drive Columbia, SC 29212

Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

Mike Moore C221

Sample ID: AB22894

Wateree Well AP1-03 TM (NPDES/CCR)

Date & Time Sampled: July 11, 2016 14:35
Date & Time Submitted: July 12, 2016 15:25

Collected by: A.HILL Location Code: WAAP103TM

AP1-03 Login Record File: 160712002

			-			
CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed A Date & T	-	Chemist
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	8/8/16	12:15	MC
Arsenic by ICP_MS EPA 200.8	1120	250	ppb	8/10/16	16:05	MC
Barium (CWA) 200.7	103	10.0	ppb	7/18/16	10:21	MC
Beryllium EPA 200.7	Less than	1.0	ppb	7/18/16	10:21	MC
Boron - EPA 200.7	1000	1000	ppb	7/18/16	10:21	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC
Calcium EPA 200.7	57000	100	ppb	7/18/16	10:21	MC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	8/8/16	12:15	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	7/18/16	08:10	MC
Molybdenum - EPA 200.8	27.3	5.0	ppb	8/8/16	12:15	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	8/8/16	12:15	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC

Approved By:	



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22895

Wateree Well AP1-04 TM (NPDES/CCR)

Date & Time Sampled: July 11, 2016 15:00

Date & Time Submitted: July 12, 2016 15:25

Collected by: A.HILL Location Code: WAAP104TM

AP1-04 Login Record File: 160712002

ppb         8/8/           ppb         8/8/           ppb         8/8/           ppb         7/18/           ppb         7/18/	ted Analysis  a & Time  16	MC MC MC
ppb 8/8/ ppb 7/18/ ppb 7/18/	16 12:15 16 10:21 16 10:21	MC MC MC
ppb 7/18/	16 10:21 16 10:21	MC MC
ppb 7/18/	16 10:21	MC
ppb 7/18/	16 10:21	MC
		IVIC
ppb 7/18/	16 11:39	MC
ppb 7/18/	16 10:21	MC
ppb 8/8/	16 12:15	MC
ppb 7/18/	16 11:39	MC
ppb 7/18/	16 11:39	MC
ppb 7/18/	16 08:10	MC
ppb 8/8/	16 12:15	MC
ppb 8/8/	16 12:15	MC
ppb 7/18/	16 11:39	MC
p p	opb 7/18/ opb 8/8/ opb 7/18/ opb 7/18/ opb 7/18/ opb 7/18/ opb 8/8/	Opb       7/18/16       11:39         Opb       7/18/16       10:21         Opb       8/8/16       12:15         Opb       7/18/16       11:39         Opb       7/18/16       11:39         Opb       7/18/16       08:10         Opb       8/8/16       12:15         Opb       8/8/16       12:15

Approved By	<i>I</i> '.
(pp.oroa b)	/ <del>*</del>



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22897

Wateree Well FGD-01 TM (NPDES/CCR)

Date & Time Sampled: July 11, 2016 16:35

Date & Time Submitted: July 12, 2016 15:25

Collected by: A.HILL Location Code: WAFGD01TM

FGD-01 Login Record File: 160712002

FGD-01	Login Record File. 1607 12002								
CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed A	Chemist				
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	8/8/16	12:15	MC			
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	8/8/16	12:15	MC			
Barium (CWA) 200.7	71.4	10.0	ppb	7/18/16	10:21	MC			
Beryllium EPA 200.7	Less than	1.0	ppb	7/18/16	10:21	MC			
Boron - EPA 200.7	Less than	1000	ppb	7/18/16	10:21	MC			
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC			
Calcium EPA 200.7	753	100	ppb	7/18/16	10:21	MC			
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	8/8/16	12:15	MC			
Cobalt by ICP_MS EPA 200.8	1.4	1.0	ppb	7/18/16	11:39	MC			
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC			
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	7/18/16	08:10	MC			
Molybdenum - EPA 200.8	Less than	5.0	ppb	8/8/16	12:15	MC			
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	8/8/16	12:15	MC			
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC			

oved By:
oved By:



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB22898

Wateree Well MW 8 TM (NPDES/CCR)

Date & Time Sampled: July 11, 2016 16:45
Date & Time Submitted: July 12, 2016 15:25

Collected by: A.HILL Location Code: WAG08TM

MW 8 Login Record File: 160712002

IVIVV O	Login Record File. 1007 12002								
CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed A	Chemist				
Antimony by ICP-MS EPA 200.8	Less than	1.0	ppb	8/8/16	12:15	MC			
Arsenic by ICP_MS EPA 200.8	6.3	1.0	ppb	8/8/16	12:15	MC			
Barium (CWA) 200.7	171	10.0	ppb	7/18/16	10:21	MC			
Beryllium EPA 200.7	5.8	1.0	ppb	7/18/16	10:21	MC			
Boron - EPA 200.7	Less than	1000	ppb	7/18/16	10:21	MC			
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC			
Calcium EPA 200.7	21900	100	ppb	7/18/16	10:21	MC			
Chromium by ICP_MS EPA 200.8	2.3	1.0	ppb	8/8/16	12:15	MC			
Cobalt by ICP_MS EPA 200.8	20.1	1.0	ppb	7/18/16	11:39	MC			
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC			
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	7/18/16	08:10	MC			
Molybdenum - EPA 200.8	Less than	5.0	ppb	8/8/16	12:15	MC			
Selenium by ICP-MS EPA 200.8	20.8	5.0	ppb	8/8/16	12:15	МС			
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	7/18/16	11:39	MC			

Approved By:	

# SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL GROUND-WATER MONITORING REPORT

Facility:	Wateree Station		Permi	t No.:	County: Richland
Date Sampled:			_	Time Sampled:	
	year-month-day (N	umerical)			
				STATION NUMBERS	
PARAMETI	E R NUMBER	MW-AP-01A	MW-FGD-01		
NAME	Lab. Certificate No.	32006	32006		
Field pH S.U.		4.450	3.900		
Field Sp. Conduct	tivity micromhos/cm	47.000	47.000		
Field Turbidity N	TU	179.40	282.10		
ORP mV		5.210	2.920		
Oxygen, dissolved	d mg/L	1.000	2.140		
Гетр (Celcius) de	egrees C	25.610	20.130		
Water level elevat	tion ft	114.31	115.17		

Date:

Authorized Release By:

# SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL GROUND-WATER MONITORING REPORT

Facility:	Wateree Station		Perm	nit No.:		County: Rich	land				
Date Sampled:	09/19/2016		_		Time Sampled:	12:00:00PM					
	year-month-day (N	umerical)									
		STATION NUMBERS									
PARAMETE	R NUMBER	MW-AP-01	MW-AP-02	MW-AP-03	MW-AP-04	MW-AP-05	MW-AP-08				
NAME	Lab. Certificate No.	32006	32006	32006	32006	32006	32006				
Field pH S.U.		6.530	6.500	6.200	6.490	6.050	5.980				
Field Sp. Conducti	vity micromhos/cm	705.000	664.000	522.000	749.000	433.000	556.000				
Field Turbidity NT	TU	-100.50	-97.10	-68.00	-54.40	-15.20	-19.50				
ORP mV		0.080	0.250	0.070	0.110	0.180	0.460				
Oxygen, dissolved	mg/L	0.600	7.250	7.860	1.200	9.400	20.100				
Temp (Celcius) deg	grees C	23.000	28.790	21.850	23.450	20.770	26.830				
Water level elevati	on ft	87.86	84 63	86.48	86.61	81 35	81 64				

Date:

Authorized Release By:

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

# Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC Client SDG: 406540 GEL Work Order: 406540

#### 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.

	Jack W	Crosh			
	/				
Reviewed by					

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

**Certificate of Analysis** 

Report Date: October 19, 2016

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: MW-8

Sample ID: 406540001

Matrix: Ground Water

Collect Date: 19-SEP-16 12:30

Receive Date: 22-SEP-16

W-8 Project: SCEG01716c 6540001 Client ID: GEEL003

Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograph	hy											
SW846 9056A An	ions "As Received	"										
Fluoride		0.274	0.033	0.100	mg/L		1	MXL2	09/23/16	1720	1601709	1
Metals Analysis-IC	CP-MS											
SW846 3005A/602	20A Liquid "As Re	eceived"										
Lithium	J	3.09	3.00	10.0	ug/L	1.00	1	SKJ	09/26/16	2211	1601309	2
Rad Gas Flow Prop	portional Counting	5										
GFPC, Ra228, Liq	uid "As Received"	'										
Radium-228	U	ND	2.60	3.00	pCi/L			AXM6	10/19/16	1221	1603992	3
Rad Radium-226												
Lucas Cell, Ra226	, liquid "As Receiv	ved"										
Radium-226	•	0.804	0.351	1.00	pCi/L			LXP1	10/18/16	0805	1602211	4
The following Prej	p Methods were pe	erformed:										
Method	Description	1		Analyst	Date	-	Гimе	e Pr	ep Batch			
SW846 3005A	ICP-MS 3005	A PREP		JP1	09/22/16	1	1730	160	01308			

The following Analytical Methods were performed:

MethodDescriptionAnalyst Comments1SW846 9056A

SW846 3005A/6020A

3 EPA 904.0/SW846 9320 Modified

EPA 903.1 Modified

Surrogate/Tracer Recovery Test Result Nominal Recovery% Acceptable Limits

Barium-133 Tracer GFPC, Ra228, Liquid "As Received"

73.8 (15%-125%)

#### **Notes:**

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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

**Certificate of Analysis** 

Project:

Units

Result

Nominal

Recovery%

81.8

Acceptable Limits

(15%-125%)

Client ID:

PF

SCEG01716c

GEEL003

Report Date: October 19, 2016

DF Analyst Date Time Batch Method

Company: Address:

GEL Engineering, LLC

2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: API-01

Sample ID:

406540002

Matrix: Collect Date: Ground Water

Receive Date:

19-SEP-16 12:35 22-SEP-16

Result

Collector:

Parameter

Client

Qualifier

Ion Chromatography	,											
EPA300.0 Fluoride i	n Liquid "As Rece	eived"										
Fluoride	•	0.363	0.033	0.100	mg/L		1 1	MXL2	09/23/16	1735	1601708	1
Metals Analysis-ICP	P-MS											
200.8/200.2 NPDES	Metals "As Rece	ived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1 5	SKJ	09/26/16	1707	1601317	2
Rad Gas Flow Propo	rtional Counting											
GFPC, Ra228, Liqui	d "As Received"											
Radium-228	U	ND	2.27	3.00	pCi/L		1	AXM6	10/19/16	1221	1603992	3
Rad Radium-226												
Lucas Cell, Ra226, li	iquid "As Receive	d"										
Radium-226		1.44	0.505	1.00	pCi/L		I	LXP1	10/18/16	0805	1602211	4
The following Prep N	Methods were perf	Formed:										
Method	Description			Analyst	Date	Ti	me	Pre	ep Batch			
EPA 200.2	ICP-MS 200.2 I	PREP		JP1	09/22/16	19	05	160	01316			
The following Analy	ytical Methods we	re performed:										
Method	Description				A	nalyst (	Com	ments	3			
1	EPA 300.0					-						
2	EPA 200.8 SC_I	NPDES										
3	EPA 904.0/SW8	46 9320 Modified										

DL

RL

#### **Notes:**

Barium-133 Tracer

Column headers are defined as follows:

Surrogate/Tracer Recovery

DF: Dilution Factor Lc/LC: Critical Level DL: Detection Limit PF: Prep Factor MDA: Minimum Detectable Activity **RL**: Reporting Limit

EPA 903.1 Modified

Test

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

GFPC, Ra228, Liquid "As Received"

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

**Certificate of Analysis** 

Project:

Units

Result

Nominal

Recovery%

80.5

Acceptable Limits

(15%-125%)

Client ID:

PF

SCEG01716c

GEEL003

Report Date: October 19, 2016

DF Analyst Date Time Batch Method

Company:

GEL Engineering, LLC

Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: API-02

Sample ID:

406540003

Matrix:

Ground Water

Collect Date:

19-SEP-16 14:35

Result

Receive Date: Collector:

Parameter

22-SEP-16 Client

Qualifier

Ion Chromatograpl	hy									
EPA300.0 Fluoride	e in Liquid "As Received"									
Fluoride	0.372	0.033	0.100	mg/L		1 MX	L2 09/23/16	1904	1601708	1
Metals Analysis-IC	CP-MS									
200.8/200.2 NPDI	ES Metals "As Received"									
Lithium	19.8	2.00	10.0	ug/L	1.00	1 SKJ	09/26/16	1723	1601317	2
Rad Gas Flow Prop	portional Counting									
GFPC, Ra228, Liq	uid "As Received"									
Radium-228	U ND	1.68	3.00	pCi/L		AX	M6 10/19/16	1221	1603992	3
Rad Radium-226										
Lucas Cell, Ra226	, liquid "As Received"									
Radium-226	1.16	0.492	1.00	pCi/L		LXI	P1 10/18/16	0845	1602211	4
The following Prep	Methods were performed:									
Method	Description		Analyst	Date	Ti	me	Prep Batch			
EPA 200.2	ICP-MS 200.2 PREP		JP1	09/22/16	19	05	1601316			
The following Ana	alytical Methods were performed:									
Method	Description	<u> </u>		A	nalyst (	Comme	ents			
1	EPA 300.0				•					
2	EPA 200.8 SC_NPDES									
3	EPA 904.0/SW846 9320 Modified	i								

DL

RL

#### **Notes:**

Barium-133 Tracer

Column headers are defined as follows:

Surrogate/Tracer Recovery

DF: Dilution Factor Lc/LC: Critical Level DL: Detection Limit PF: Prep Factor MDA: Minimum Detectable Activity **RL**: Reporting Limit

EPA 903.1 Modified

Test

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

GFPC, Ra228, Liquid "As Received"

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: October 19, 2016

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: MW-1A
Sample ID: 406540004
Matrix: Ground Water
Collect Date: 19-SEP-16 14:50

Receive Date: 22-SEP-16 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograph	hy											
SW846 9056A An	ions "As Received	"										
Fluoride	J	0.0597	0.033	0.100	mg/L		1	MXL2	09/23/16	1751	1601709	1
Metals Analysis-IC	CP-MS											
SW846 3005A/602	20A Liquid "As Re	eceived"										
Lithium	U	ND	3.00	10.0	ug/L	1.00	1	SKJ	09/26/16	2239	1601309	2
Rad Gas Flow Pro	portional Counting	<u>,</u>										
GFPC, Ra228, Liq	uid "As Received"	,										
Radium-228	U	ND	1.56	3.00	pCi/L			AXM6	10/19/16	1221	1603992	3
Rad Radium-226												
Lucas Cell, Ra226	, liquid "As Receiv	ved"										
Radium-226	•	0.536	0.257	1.00	pCi/L			LXP1	10/18/16	0845	1602211	4
The following Prep	p Methods were pe	erformed:										
Method	Description	1		Analyst	Date	,	Гim	e Pr	ep Batch			
SW846 3005A	ICP-MS 3005	A PREP		JP1	09/22/16		1730	160	01308			<del></del>
The fellowing An	alretical Mathada		aad.									

The following Analytical Methods were performed:

MethodDescriptionAnalyst Comments1SW846 9056A

2 SW846 3005A/6020A 3 EPA 904.0/SW846 9320 Modified

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"

79.6 (15%-125%)

#### **Notes:**

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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

**Certificate of Analysis** 

Project:

Units

Result

Nominal

Recovery%

78.8

Client ID:

PF

SCEG01716c

GEEL003

DF Analyst Date

Report Date: October 19, 2016

Time Batch Method

Acceptable Limits

(15%-125%)

Company:

GEL Engineering, LLC

Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: FB-01 EPA

Sample ID:

406540005

Matrix:

Ground Water

Collect Date:

19-SEP-16 15:35

Receive Date:

22-SEP-16

Result

Collector:

Parameter

Client

Qualifier

Ion Chromatography											
EPA300.0 Fluoride in	Liquid "As Recei	ived"									
Fluoride	U	ND	0.033	0.100	mg/L	1	MXL2	09/23/16	1934	1601708	1
Metals Analysis-ICP-N	MS										
200.8/200.2 NPDES N	Metals "As Receiv	ved"									
Lithium	U	ND	2.00	10.0	ug/L	1.00 1	SKJ	09/26/16	1734	1601317	2
Rad Gas Flow Proport	ional Counting										
GFPC, Ra228, Liquid	"As Received"										
Radium-228	U	ND	1.85	3.00	pCi/L		AXM6	10/19/16	1221	1603992	3
Rad Radium-226											
Lucas Cell, Ra226, liq	uid "As Received	."									
Radium-226	U	ND	0.379	1.00	pCi/L		LXP1	10/18/16	0845	1602211	4
The following Prep M	ethods were perfo	ormed:									
Method	Description			Analyst	Date	Tin	ne Pr	ep Batch			_
EPA 200.2	ICP-MS 200.2 PI	REP		JP1	09/22/16	190	5 16	01316	-		
The following Analyt	ical Methods wer	e performed:									
Method	Description				A	nalyst Co	omment	s			
1	EPA 300.0										
2	EPA 200.8 SC_N	PDES									
3	EPA 904.0/SW84	6 9320 Modified									
4	EPA 903.1 Modif	ied									

DL

RL

#### **Notes:**

Barium-133 Tracer

Column headers are defined as follows:

Surrogate/Tracer Recovery

DF: Dilution Factor Lc/LC: Critical Level DL: Detection Limit PF: Prep Factor MDA: Minimum Detectable Activity **RL**: Reporting Limit

Test

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

GFPC, Ra228, Liquid "As Received"

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

# **Certificate of Analysis**

Project:

Client ID:

**Analyst Comments** 

SCEG01716c

GEEL003

Report Date: October 19, 2016

Company:

GEL Engineering, LLC

Address:

2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: FB-01 SW846

Sample ID:

406540006

Matrix:

Ground Water

Collect Date:

19-SEP-16 15:35

Receive Date: Collector:

22-SEP-16 Client

Parameter	Qualifier	Result	DL	RL	Units	PF D	OF A	nalyst Date	Time Batch	Method
Ion Chromatograph	hy									
SW846 9056A An	ions "As Received	"								
Fluoride	J	0.0664	0.033	0.100	mg/L		1 M	IXL2 09/23/16	1823 1601709	1
Metals Analysis-IC	CP-MS									
SW846 3005A/602	20A Liquid "As Re	ceived"								
Lithium	U	ND	3.00	10.0	ug/L	1.00	1 SI	KJ 09/26/16	2243 1601309	2
The following Prep	Methods were pe	rformed:								
Method	Description	l		Analyst	Date	Ti	me	Prep Batch		
SW846 3005A	ICP-MS 3005.	A PREP		JP1	09/22/16	17	30	1601308		

The following Analytical Methods were performed:

Description Method SW846 9056A

SW846 3005A/6020A

#### **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

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: October 19, 2016

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner
Project: Wateree CCR

Client Sample ID: API-04
Sample ID: 406540007
Matrix: Ground Water
Collect Date: 19-SEP-16 16:15

Receive Date: 22-SEP-16 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograp	ohy											
EPA300.0 Fluorid	le in Liquid "As Re	eceived"										
Fluoride	•	0.351	0.033	0.100	mg/L		1	MXL2	09/23/16	2004	1601708	1
Metals Analysis-I	CP-MS											
200.8/200.2 NPD	ES Metals "As Red	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	SKJ	09/26/16	1738	1601317	2
Rad Gas Flow Pro	portional Counting	<u>r</u>										
GFPC, Ra228, Lic	quid "As Received"	1										
Radium-228	U	ND	1.48	3.00	pCi/L			AXM6	10/19/16	1221	1603992	3
Rad Radium-226												
Lucas Cell, Ra226	, liquid "As Receiv	ved"										
Radium-226	•	1.57	0.446	1.00	pCi/L			LXP1	10/18/16	0845	1602211	4
The following Pre	p Methods were pe	erformed:										
Method	Description	1		Analyst	Date	ı	Tim	e Pr	ep Batch			
EPA 200.2	ICP-MS 200.2	2 PREP		JP1	09/22/16		1905	160	01316			<del></del>
TEL C. II A	. 1 1											

The following Analytical Methods were performed:

Method Description Analyst Comments

EPA 300.0

EPA 200.8 SC\_NPDES
 EPA 904.0/SW846 9320 Modified

EPA 903.1 Modified

Surrogate/Tracer Recovery Test Result Nominal Recovery% Acceptable Limits

Barium-133 Tracer GFPC, Ra228, Liquid "As Received"

91.5 (15%-125%)

#### **Notes:**

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: October 19, 2016

Company:

GEL Engineering, LLC

2040 Savage Rd Address:

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: API-03

Sample ID:

406540008

Matrix:

Ground Water

Collect Date:

19-SEP-16 17:40

Receive Date: Collector:

22-SEP-16 Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograp	ohy											
EPA300.0 Fluorio	de in Liquid "As Re	eceived"										
Fluoride	-	0.805	0.033	0.100	mg/L		1	MXL2	09/23/16	2034	1601708	1
Metals Analysis-I	CP-MS											
200.8/200.2 NPD	DES Metals "As Rec	ceived"										
Lithium		82.5	2.00	10.0	ug/L	1.00	1	SKJ	09/26/16	1742	1601317	2
Rad Gas Flow Pro	oportional Counting	3										
GFPC, Ra228, Li	quid "As Received"	•										
Radium-228	U	ND	1.65	3.00	pCi/L			AXM6	10/19/16	1338	1603992	3
Rad Radium-226												
Lucas Cell, Ra22	6, liquid "As Receiv	ved"										
Radium-226	-	1.02	0.443	1.00	pCi/L			LXP1	10/18/16	0845	1602211	4
The following Pro	ep Methods were pe	erformed:										
Method	Description	n		Analyst	Date	7	ime	Pro	ep Batch			
EPA 200.2	ICP-MS 200.2	2 PREP		JP1	09/22/16	1	905	160	01316			
			_									

# 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	

EPA 903.1 Modified

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			82.1	(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

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

**Certificate of Analysis** 

Project:

Units

Client ID:

PF

SCEG01716c

87.7

(15%-125%)

GEEL003

Report Date: October 19, 2016

DF Analyst Date Time Batch Method

Company:

GEL Engineering, LLC 2040 Savage Rd

Address:

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: API-05

Sample ID:

406540009

Matrix: Collect Date:

Parameter

Ground Water

Receive Date:

19-SEP-16 17:40 22-SEP-16

Result

Collector:

Client

Qualifier

Ion Chromatography										
EPA300.0 Fluoride in I	Liquid "As Rec	eived"								
Fluoride	J	0.0627	0.033	0.100	mg/L	1	MXL2	09/23/16	2104 16017	708 1
Metals Analysis-ICP-M	IS									
200.8/200.2 NPDES M	letals "As Rece	ived"								
Lithium	U	ND	2.00	10.0	ug/L	1.00 1	SKJ	09/26/16	1746 16013	317 2
Rad Gas Flow Proportion	onal Counting									
GFPC, Ra228, Liquid "	As Received"									
Radium-228	U	ND	2.02	3.00	pCi/L		AXM6	5 10/19/16	1222 16039	992 3
Rad Radium-226										
Lucas Cell, Ra226, liqu	id "As Receive	ed"								
Radium-226		0.896	0.426	1.00	pCi/L		LXP1	10/18/16	0845 16022	211 4
The following Prep Me	thods were per	formed:								
Method	Description			Analyst	Date	Tin	ne Pr	ep Batch	1	
EPA 200.2	ICP-MS 200.2	PREP		JP1	09/22/16	5 190	5 16	01316		
The following Analytic	cal Methods we	ere performed:								
Method	Description					Analyst Co	omment	S		
1	EPA 300.0									
2	EPA 200.8 SC_	NPDES								
3	EPA 904.0/SW8	346 9320 Modified								
4	EPA 903.1 Mod	ified								
Surrogate/Tracer Recov	very Test				Result	Nominal	Reco	very%	Acceptable	Limits

DL

RL

#### **Notes:**

Barium-133 Tracer

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

GFPC, Ra228, Liquid "As Received"

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

Project:

Units

Client ID:

PF

SCEG01716c

GEEL003

DF Analyst Date

84.6

(15%-125%)

**Certificate of Analysis** 

Report Date: October 19, 2016

Time Batch Method

Company:

GEL Engineering, LLC

Address:

2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: FGD-01

Sample ID:

406540010

Matrix:

Ground Water

Collect Date:

19-SEP-16 18:50

Result

Receive Date:

22-SEP-16

Collector:

Parameter

Client

Qualifier

Ion Chromatography										
EPA300.0 Fluoride in	Liquid "As Rece	eived"								
Fluoride	U	ND	0.033	0.100	mg/L		l MXL2	09/23/16	2234 1601708	1
Metals Analysis-ICP-N	MS									
200.8/200.2 NPDES N	Metals "As Rece	ived"								
Lithium	J	2.33	2.00	10.0	ug/L	1.00	l SKJ	09/26/16	1750 1601317	2
Rad Gas Flow Proport	ional Counting									
GFPC, Ra228, Liquid	"As Received"									
Radium-228		1.68	1.32	3.00	pCi/L		AXM	5 10/19/16	1222 1603992	3
Rad Radium-226										
Lucas Cell, Ra226, liq	uid "As Receive	d"								
Radium-226		1.36	0.427	1.00	pCi/L		LXP1	10/18/16	0845 1602211	4
The following Prep Mo	ethods were per	formed:								_
Method	Description			Analyst	Date	Ti	me P	rep Batch	1	
EPA 200.2	ICP-MS 200.2 I	PREP		JP1	09/22/10	5 190	)5 16	01316		
The following Analyti	ical Methods we	re performed:								
Method	Description					Analyst C	omment	S		
1	EPA 300.0					-				
2	EPA 200.8 SC_I	NPDES								
3		46 9320 Modified								
4	EPA 903.1 Mod									
Surrogate/Tracer Reco	very Test				Result	Nominal	Reco	very%	Acceptable Limit	s

DL

RL

#### **Notes:**

Barium-133 Tracer

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

GFPC, Ra228, Liquid "As Received"

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

**QC Summary** 

Report Date: October 19, 2016

Page 1 of 4

GEL Engineering, LLC 2040 Savage Rd

Charleston, South Carolina

**Contact:** Robert Gardner

Workorder: 406540

Parmname		NOM		Sample	Qual	QC	Units	RPD%	REC%	Range Anlst	Date Time
Ion Chromatography Batch 1601708											
QC1203634730 406540 Fluoride	0002 DUP			0.363		0.371	mg/L	2.34 ^	<b>.</b>	(+/-0.100) MXL	2 09/23/16 18:05
QC1203634731 406540 Fluoride	0015 DUP		U	ND	U	ND	mg/L	N/A			09/24/16 01:33
QC1203634729 LCS Fluoride	}	2.50				2.35	mg/L		94	(90%-110%)	09/23/16 17:05
QC1203634728 MB Fluoride					U	ND	mg/L				09/23/16 16:35
QC1203634732 406540 Fluoride	0002 PS	2.50		0.363		2.72	mg/L		94.4	(90%-110%)	09/23/16 18:35
QC1203634733 406540 Fluoride	0015 PS	2.50	U	ND		2.50	mg/L		99	(90%-110%)	09/24/16 02:03
Batch 1601709											
QC1203634736 406546 Fluoride	0021 DUP		J	0.0591	J	0.0775	mg/L	26.9 ^		(+/-0.100) MXL	2 09/23/16 23:06
QC1203634735 LCS Fluoride	1	2.50				2.57	mg/L		103	(90%-110%)	09/23/16 16:49
QC1203634734 MB Fluoride					U	ND	mg/L				09/23/16 16:18
QC1203634737 406540 Fluoride	0021 PS	2.50	J	0.0591		2.77	mg/L		109	(90%-110%)	09/23/16 23:37
Metals Analysis - ICPMS Batch 1601309											
QC1203633861 406540 Lithium	0001 DUP		J	3.09	J	3.02	ug/L	2.33 ^		(+/-10.0) SK	J 09/26/16 22:15
QC1203633860 LCS Lithium	1	50.0				51.9	ug/L		104	(80%-120%)	09/26/16 22:07
QC1203633859 MB Lithium					U	ND	ug/L				09/26/16 22:03
QC1203633862 406540	0001 MS					52.9				(75%-125%)	

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

# **QC Summary**

Workorder: 406540									Page 2 of 4
Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range Anlst	Date Time
Metals Analysis - ICPMS Batch 1601309									
Lithium	50.0	J 3.09			ug/L		99.6		09/26/16 22:19
QC1203633863 406540001 SDILT Lithium		J 3.09	U	ND	ug/L	N/A		(0%-10%) SKJ	09/26/16 22:27
Batch 1601317 ———									
QC1203633871 406540002 DUP Lithium		U ND	U	ND	ug/L	N/A		SKJ	09/26/16 17:11
QC1203633872 406540012 DUP Lithium		U ND	U	ND	ug/L	N/A			09/27/16 11:49
QC1203633870 LCS Lithium	50.0			48.0	ug/L		95.9	(80%-120%)	09/26/16 17:03
QC1203633869 MB Lithium			U	ND	ug/L				09/26/16 16:59
QC1203633873 406540002 MS Lithium	50.0	U ND		48.4	ug/L		96.4	(75%-125%)	09/26/16 17:15
QC1203633874 406540012 MS Lithium	50.0	U ND		51.1	ug/L		102	(75%-125%)	09/27/16 11:52
QC1203633875 406540002 SDILT Lithium		U ND	U	ND	ug/L	N/A		(0%-10%)	09/26/16 17:19
QC1203633876 406540012 SDILT Lithium		U ND	U	ND	ug/L	N/A		(0%-10%)	09/27/16 11:55
Rad Gas Flow Batch 1603992									
QC1203640324 406540008 DUP Radium-228		U 1.64	U	0.940	pCi/L	N/A		N/AAXM6	10/19/16 13:38
QC1203640325 LCS Radium-228	21.9			21.0	pCi/L		95.9	(75%-125%)	10/19/16 12:21
QC1203640323 MB Radium-228			U	0.252	pCi/L				10/19/16 12:21
Rad Ra-226 Batch 1602211									
QC1203636173 406540001 DUP Radium-226		0.804		1.10	pCi/L	31.1		(0% - 100%) LXP1	10/18/16 10:30
QC1203636175 LCS									

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

# **QC Summary**

Workorder: 406540				_					Page 3	of 4
Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range A	nlst	Date Ti	ime
<b>Rad Ra-226</b> Batch 1602211										
Radium-226	24.4		26.8	pCi/L		110	(75%-125%)		10/18/16	10:30
QC1203636172 MB Radium-226		U	0.0609	pCi/L			]	LXP1	10/18/16	10:30
QC1203636174 406540001 MS Radium-226	122	0.804	129	pCi/L		105	(75%-125%)		10/18/16	10:30

#### **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
- $M \qquad REMP \ Result > MDC/CL \ and < RDL$
- 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

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

# **QC Summary**

Workorder: 406540

Parmname

NOM Sample Qual QC Units RPD% REC% Range Anlst Date Time

- 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.



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB23720

Wateree Well MW 8 (NPDES/CCR)

Date & Time Sampled: Septem Date & Time Submitted: Septem

September 19, 2016 12:30 September 20, 2016 15:40

Collected by: A.HILL Location Code: WAG08TDS

MW 8 Login Record File: 160920003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	18.5	2.5	mg/L	10/4/16 03:41	LS
pH by SM4500HB	6.2	0.00	S.U.	9/21/16 11:01	PRC
Holding Time of 15 minutes has been ex	xceeded.				
Sulfates by IC EPA 300.0	53.7	2.5	mg/L	10/4/16 03:41	LS
Total Dissolved Solid-SM2540C	361	2.0	mg/L	9/22/16 10:40	PRC

Approved By:		
AUDIOVED DV.		



Tel: (803)217-9384 Fax: (803) 217-9911

12:35

15:40

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB23721

Wateree Well AP1-01 (NPDES/CCR)

Date & Time Sampled: September 19, 2016

Date & Time Submitted: September 20, 2016

Collected by: A.HILL Location Code: WAAP101TDS

AP1-01 Login Record File: 160920003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	148.5	2.5	mg/L	10/4/16 03:41	LS
pH by SM4500HB	6.7	0.00	S.U.	9/21/16 11:01	PRC
Holding Time of 15 minutes has been ex	xceeded.				
Sulfates by IC EPA 300.0	9.20	2.5	mg/L	10/4/16 03:41	LS
Total Dissolved Solid-SM2540C	405	2.0	mg/L	9/22/16 10:40	PRC

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB23722

Wateree Well AP1-02 (NPDES/CCR)

Date & Time Sampled: September 19, 2016 14:35 Date & Time Submitted: September 20, 2016 15:40

Collected by: A.HILL Location Code: WAAP102TDS

AP1-02 Login Record File: 160920003

Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
67.2	0.5	mg/L	10/4/16 03:41	LS
6.6 xceeded.	0.00	S.U.	9/21/16 11:01	PRC
48.4	0.5	mg/L	10/4/16 03:41	LS
367	2.0	mg/L	9/22/16 10:40	PRC
	67.2 6.6 xceeded. 48.4	Result Limit(MRL)  67.2 0.5  6.6 0.00  xceeded.  48.4 0.5	Result         Limit(MRL)         Units           67.2         0.5         mg/L           6.6         0.00         S.U.           xceeded.         48.4         0.5         mg/L	Result         Limit(MRL)         Units         Date & Time           67.2         0.5         mg/L         10/4/16         03:41           6.6         0.00         S.U.         9/21/16         11:01           xceeded.         48.4         0.5         mg/L         10/4/16         03:41

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB23723

Wateree NPDES Well MW 1 (NPDES)

Date & Time Sampled: September 19, 2016 14:50
Date & Time Submitted: September 20, 2016 15:40

Collected by: A.HILL Location Code: WAG01TDS

MW 1 Login Record File: 160920003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	5.35	0.5	mg/L	10/4/16 03:41	LS
pH by SM4500HB	5.8	0.00	S.U.	9/21/16 11:01	PRC
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	LESS THAN	0.5	mg/L	10/4/16 03:41	LS
Total Dissolved Solid-SM2540C	37	2.0	mg/L	9/22/16 10:40	PRC

Approved By:		
AUDIOVED DV.		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB23725

Wateree Well AP1-04 (NPDES/CCR)

Date & Time Sampled: September 19, 2016 16:15
Date & Time Submitted: September 20, 2016 15:40

Collected by: A.HILL Location Code: WAAP104TDS

AP1-04 Login Record File: 160920003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	17.5	0.5	mg/L	10/4/16 03:41	LS
pH by SM4500HB	6.6	0.00	S.U.	9/21/16 11:01	PRC
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	LESS THAN	0.5	mg/L	10/4/16 03:41	LS
Total Dissolved Solid-SM2540C	428	2.0	mg/L	9/22/16 10:40	PRC

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

REPORT TO:

Mike Moore

Sample ID: AB23726

Wateree Well AP1-03 (NPDES/CCR)

Date & Time Sampled: September 19, 2016 17:40
Date & Time Submitted: September 20, 2016 15:40

Collected by: A.HILL Location Code: WAAP103TDS

AP1-03 Login Record File: 160920003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	20.5	0.5	mg/L	10/4/16 03:41	LS
pH by SM4500HB	6.7	0.00	S.U.	9/21/16 11:01	PRC
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	55.3	0.5	mg/L	10/4/16 03:41	LS
Total Dissolved Solid-SM2540C	312	2.0	mg/L	9/22/16 10:40	PRC



Mike Moore

# Central Laboratory (P-08) 2102 North Lake Drive Columbia, SC 29212

Tel: (803)217-9384 Fax: (803) 217-9911

REPORT TO:

Sample ID: AB23727

January 31, 2018

, ......

Wateree Well AP1-05 (NPDES/CCR)

Date & Time Sampled: September 19, 2016 17:40
Date & Time Submitted: September 20, 2016 15:40

Collected by: A.HILL Location Code: WAAP105TDS

AP1-05 Login Record File: 160920003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	19.5	0.5	mg/L	10/4/16 03:41	LS
pH by SM4500HB	6.1	0.00	S.U.	9/21/16 11:01	PRC
Holding Time of 15 minutes has been of	exceeded.				
Sulfates by IC EPA 300.0	3.22	0.5	mg/L	10/4/16 03:41	LS
Total Dissolved Solid-SM2540C	252.5	2.0	mg/L	9/22/16 10:40	PRC



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB23728

Wateree Well FGD-01 (NPDES/CCR)

Date & Time Supplied: Septem

Date & Time Submitted: Septer Collected by: A.HILL

September 19, 2016 18:50 September 20, 2016 15:40

Location Code: WAFGD01TDS

FGD-01 Login Record File: 160920003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	7.00	0.5	mg/L	10/4/16 03:41	LS
pH by SM4500HB	5.72	0.00	S.U.	9/21/16 16:01	PRC
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	LESS THAN	0.5	mg/L	10/4/16 03:41	LS
Total Dissolved Solid-SM2540C	33	2.0	mg/L	9/22/16 10:40	PRC



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB23740

Wateree Well MW 8 TM (NPDES/CCR)

Date & Time Sampled:

September 19, 2016 12:30 September 20, 2016 15:40

Date & Time Submitted: Sel Collected by: A.HILL

Location Code: WAG08TM

MW 8 Login Record File: 160921001

IVIVV O	Logiii Necold File. 100921001				
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	9/27/16 10:48	MC
Arsenic by ICP_MS EPA 200.8	1.8	1.0	ppb	9/27/16 10:48	MC
Barium (CWA) 200.7	198	10.0	ppb	9/22/16 15:09	MC
Beryllium EPA 200.7	Less than	2.0	ppb	9/22/16 15:09	MC
Boron - EPA 200.7	Less than	1000	ppb	9/22/16 15:09	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC
Calcium EPA 200.7	16200	100	ppb	9/22/16 15:09	MC
Chromium by ICP_MS EPA 200.8	1.1	1.0	ppb	9/27/16 10:48	MC
Cobalt by ICP_MS EPA 200.8	2.2	1.0	ppb	9/27/16 10:48	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	9/22/16 15:37	СВ
Molybdenum - EPA 200.8	Less than	5.0	ppb	9/27/16 10:48	MC
Selenium by ICP-MS EPA 200.8	5.4	5.0	ppb	9/27/16 10:48	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC

Approved By	<i>I</i> '.
(pp.oroa b)	/ <del>*</del>



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB23741

Wateree Well AP1-01 TM (NPDES/CCR)

Date & Time Sampled:
Date & Time Submitted:

Collected by: A.HILL

September 19, 2016 12:35 September 20, 2016 15:40

Location Code: WAAP101TM

AP1-01 Login Record File: 160921001

AP 1-01	Login Record File. 160921001					
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	9/27/16 10:48	МС	
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	МС	
Barium (CWA) 200.7	209	10.0	ppb	9/22/16 15:09	МС	
Beryllium EPA 200.7	Less than	2.0	ppb	9/22/16 15:09	МС	
Boron - EPA 200.7	1250	1000	ppb	9/22/16 15:09	МС	
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	МС	
Calcium EPA 200.7	47800	100	ppb	9/22/16 15:09	МС	
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC	
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	МС	
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	МС	
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	9/22/16 15:37	СВ	
Molybdenum - EPA 200.8	6.4	5.0	ppb	9/27/16 10:48	МС	
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	9/27/16 10:48	МС	
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC	

oved By:
oved By:



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB23742

Collected by: A.HILL

Wateree Well AP1-02 TM (NPDES/CCR)

Date & Time Sampled: State & Time Submitted: State & T

September 19, 2016 14:35 September 20, 2016 15:40

Location Code: WAAP102TM

AP1-02 Login Record File: 160921001

AP 1-02	Login Record File. 160921001					
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	9/27/16 10:48	MC	
Arsenic by ICP_MS EPA 200.8	280	5.0	ppb	9/27/16 15:47	МС	
Barium (CWA) 200.7	179	10.0	ppb	9/22/16 15:09	МС	
Beryllium EPA 200.7	Less than	2.0	ppb	9/22/16 15:09	МС	
Boron - EPA 200.7	Less than	1000	ppb	9/22/16 15:09	МС	
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	МС	
Calcium EPA 200.7	71100	100	ppb	9/22/16 15:09	МС	
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC	
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC	
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	МС	
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	9/22/16 15:37	СВ	
Molybdenum - EPA 200.8	57.1	5.0	ppb	9/27/16 10:48	МС	
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	9/27/16 10:48	MC	
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC	

Approved By:	



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB23743

Wateree NPDES Well MW 1 Total Metals (NPDES)

Date & Time Sampled:
Date & Time Submitted:

September 19, 2016 14:50 September 20, 2016 15:40

Collected by: A.HILL

Location Code: WAG01TM

MW 1 Login Record File: 160921001

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	9/27/16 10:48	MC	
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC	
Barium (CWA) 200.7	53.7	10.0	ppb	9/22/16 15:09	MC	
Beryllium EPA 200.7	Less than	2.0	ppb	9/22/16 15:09	MC	
Boron - EPA 200.7	Less than	1000	ppb	9/22/16 15:09	MC	
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC	
Calcium EPA 200.7	721	100	ppb	9/22/16 15:09	MC	
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC	
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC	
Lead by ICP-MS EPA 200.8	1.5	1.0	ppb	9/27/16 10:48	MC	
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	9/22/16 15:37	СВ	
Molybdenum - EPA 200.8	Less than	5.0	ppb	9/27/16 10:48	MC	
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	9/27/16 10:48	MC	
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	МС	

Approved By:	



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB23745

Wateree Well AP1-04 TM (NPDES/CCR)

Date & Time Sampled: September 2 September

September 19, 2016 16:15 September 20, 2016 15:40

Collected by: A.HILL Location Code: WAAP104TM

AP1-04 Login Record File: 160921001

AF 1-04	Logiii Necold File. 100921001				
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	9/27/16 10:48	MC
Arsenic by ICP_MS EPA 200.8	6.1	1.0	ppb	9/27/16 10:48	MC
Barium (CWA) 200.7	149	10.0	ppb	9/22/16 15:09	MC
Beryllium EPA 200.7	Less than	2.0	ppb	9/22/16 15:09	MC
Boron - EPA 200.7	2590	1000	ppb	9/22/16 15:09	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC
Calcium EPA 200.7	110000	100	ppb	9/22/16 15:09	MC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	9/22/16 15:37	СВ
Molybdenum - EPA 200.8	Less than	5.0	ppb	9/27/16 10:48	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	9/27/16 10:48	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC

Approved By:	



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB23746

Wateree Well AP1-03 TM (NPDES/CCR)

Date & Time Sampled: Se Date & Time Submitted: Se

September 19, 2016 17:40 September 20, 2016 15:40

Collected by: A.HILL Location Code: WAAP103TM

AP1-03 Login Record File: 160921001

AP 1-03	Login Record File. 160921001					
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	9/27/16 10:48	МС	
Arsenic by ICP_MS EPA 200.8	1170	20.0	ppb	9/27/16 15:47	МС	
Barium (CWA) 200.7	122	10.0	ppb	9/22/16 15:09	МС	
Beryllium EPA 200.7	Less than	2.0	ppb	9/22/16 15:09	МС	
Boron - EPA 200.7	1080	1000	ppb	9/22/16 15:09	MC	
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC	
Calcium EPA 200.7	64500	100	ppb	9/22/16 15:09	MC	
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC	
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC	
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	МС	
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	9/22/16 15:37	СВ	
Molybdenum - EPA 200.8	21.4	5.0	ppb	9/27/16 10:48	МС	
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	9/27/16 10:48	MC	
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC	

Approved By:	



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB23747

Wateree Well AP1-05 TM (NPDES/CCR)

Date & Time Sampled: Date & Time Submitted:

September 19, 2016 17:40 15:40

September 20, 2016

Collected by: A.HILL Location Code: WAAP105TM

AP1-05 Login Record File: 160921001

			•		
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	9/27/16 10:48	MC
Arsenic by ICP_MS EPA 200.8	1.9	1.0	ppb	9/27/16 10:48	MC
Barium (CWA) 200.7	199	10.0	ppb	9/22/16 15:09	MC
Beryllium EPA 200.7	Less than	2.0	ppb	9/22/16 15:09	MC
Boron - EPA 200.7	Less than	1000	ppb	9/22/16 15:09	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC
Calcium EPA 200.7	12600	100	ppb	9/22/16 15:09	MC
Chromium by ICP_MS EPA 200.8	1.0	1.0	ppb	9/27/16 10:48	MC
Cobalt by ICP_MS EPA 200.8	2.3	1.0	ppb	9/27/16 10:48	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	9/22/16 15:37	СВ
Molybdenum - EPA 200.8	Less than	5.0	ppb	9/27/16 10:48	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	9/27/16 10:48	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC

Approved By	<i>r</i> :
ippiorou Dj	•



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB23748

Wateree Well FGD-01 TM (NPDES/CCR)

Date & Time Sampled: Date & Time Submitted: September 19, 2016 18:50 September 20, 2016 15:40

Collected by: A.HILL Location Code: WAFGD01TM

FGD-01 Login Record File: 160921001

FGD-01	Logiii Necold File. 100921001				
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	9/27/16 10:48	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC
Barium (CWA) 200.7	79.0	10.0	ppb	9/22/16 15:09	MC
Beryllium EPA 200.7	Less than	2.0	ppb	9/22/16 15:09	MC
Boron - EPA 200.7	Less than	1000	ppb	9/22/16 15:09	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC
Calcium EPA 200.7	803	100	ppb	9/22/16 15:09	MC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC
Cobalt by ICP_MS EPA 200.8	1.5	1.0	ppb	9/27/16 10:48	MC
Lead by ICP-MS EPA 200.8	1.0	1.0	ppb	9/27/16 10:48	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	9/22/16 15:37	СВ
Molybdenum - EPA 200.8	Less than	5.0	ppb	9/27/16 10:48	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	9/27/16 10:48	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	9/27/16 10:48	MC

Approved By	<i>r</i> :
ippiorou Dj	•

# SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL GROUND-WATER MONITORING REPORT

Facility:	Wateree Station		Permi	t No.:	County: Richland
Date Sampled:	11/15/2016		_	Time Sampled:	12:00:00PM
	year-month-day (N	umerical)			
			T	STATION NUMBERS	
PARAMETI	E R NUMBER	MW-AP-01A	MW-FGD-01		
NAME	Lab. Certificate No.	32006	32006		
Field pH S.U.		4.810	4.570		
Field Sp. Conduct	tivity micromhos/cm	58.000	62.000		
Field Turbidity N	TU	1.30	5.80		
ORP mV		293.000	260.000		
Oxygen, dissolved	d mg/L	3.970	3.070		
Temp (Celcius) do	egrees C	20.170	14.590		
Water level elevat	tion ft	113.69	115.02		

Date:

Authorized Release By:

# SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL GROUND-WATER MONITORING REPORT

Facility:	Wateree Station	Permit No.:	County: Richland
Date Sampled:	11/15/2016	Time Sampled:	12:00:00PM
	year-month-day (Numerical)		

## STATION NUMBERS

PARAMETER	NUMBER	MW-AP-02	MW-AP-03	MW-AP-04	MW-AP-05	MW-AP-08
NAME	Lab. Certificate No.	32006	32006	32006	32006	32006
Field pH S.U.		6.880	7.010	6.820	6.450	6.050
Field Sp. Conductivity	micromhos/cm	607.000	565.000	827.000	456.000	581.000
Field Turbidity NTU		7.20	7.40	6.10	6.90	1.90
ORP mV		-40.000	-56.000	-41.000	-9.000	13.000
Oxygen, dissolved mg/	/L	0.480	0.570	0.450	0.450	0.370
Temp (Celcius) degree	es C	19.190	18.990	19.860	19.850	19.510
Water level elevation f	ì	84.01	85.58	85.22	80.08	80.29

Authorized Release By:	Date:	

## SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL GROUND-WATER MONITORING REPORT

Facility: Wateree Station		Permit No.:	County: Richland
Date Sampled: 11/16/2016		Time Sampled:	12:00:00PM
year-month-day (N	umerical)		
		STATION NUMBERS	
PARAMETER NUMBER	MW-AP-01		
NAME Lab. Certificate No.	32006		
Field pH S.U.	6.970		
Field Sp. Conductivity micromhos/cm	801.000		
Field Turbidity NTU	4.20		
ORP mV	-72.000		
Oxygen, dissolved mg/L	0.460		
Temp (Celcius) degrees C	20.990		
Water level elevation ft	87.37		
Authorized Release By:		Date:	

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

# Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC Client SDG: 411026 GEL Work Order: 411026

### 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.

	Johne Cotes		
Reviewed by	•		

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

## **Certificate of Analysis**

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: December 14, 2016

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: FGD-1
Sample ID: 411026001
Matrix: Ground Water
Collect Date: 15-NOV-16 08:05
Receive Date: 18-NOV-16

Receive Date: 18-NO Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in Liquid "As Received"												
Fluoride	U	ND	0.033	0.100	mg/L		1	MAR1	12/07/16	1649	1618153	1
Metals Analysis-ICP	-MS											
200.8/200.2 NPDES	Metals "As Red	ceived"										
Lithium	J	2.33	2.00	10.0	ug/L	1.00	1	BAJ	11/28/16	2320	1617950	2
Rad Gas Flow Propos	rtional Counting	7										
GFPC, Ra228, Liquio	d "As Received"	'										
Radium-228		2.26	1.08	3.00	pCi/L			AXM6	12/13/16	1124	1619875	3
Rad Radium-226												
Lucas Cell, Ra226, li	quid "As Receiv	ved"										
Radium-226		1.98	0.373	1.00	pCi/L			LXP1	12/14/16	0815	1620874	4
The following Prep N	The following Prep Methods were performed:											
Method	Description	1		Analyst	Date	-	Гimе	Pre	ep Batch			
EPA 200.2	ICP-MS 200.2	2 PREP		CXW4	11/21/16		1620	161	7949			

## 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	GEPC Ra228 Liquid "As Received"			97.4	(15%-125%)

#### **Notes:**

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: December 14, 2016

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: MW-1A
Sample ID: 411026002
Matrix: Ground Water
Collect Date: 15-NOV-16 09:05

Receive Date: 18-NOV-16 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride i	n Liquid "As Re	eceived"										
Fluoride	J	0.0396	0.033	0.100	mg/L		1	MAR1	12/07/16	1718	1618153	1
Metals Analysis-ICP	-MS											
200.8/200.2 NPDES	Metals "As Red	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	11/28/16	2331	1617950	2
Rad Gas Flow Propo	rtional Counting	3										
GFPC, Ra228, Liqui	d "As Received"	1										
Radium-228		3.42	2.09	3.00	pCi/L			AXM6	12/13/16	1124	1619875	3
Rad Radium-226												
Lucas Cell, Ra226, li	iquid "As Recei	ved"										
Radium-226		0.755	0.362	1.00	pCi/L			LXP1	12/14/16	0815	1620874	4
The following Prep I	Methods were pe	erformed:										
Method	Description	n		Analyst	Date	-	Γim	e Pr	ep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		CXW4	11/21/16	]	1620	16	17949			

The following Analytical Methods were performed:

MethodDescriptionAnalyst Comments1EPA 300.02EPA 200.8 SC\_NPDES

3 EPA 904.0/SW846 9320 Modified

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

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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

## **Certificate of Analysis**

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: December 14, 2016

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: MW-8 Sample ID: 411026003 Matrix: Ground Water Collect Date: 15-NOV-16 12:20

18-NOV-16 Receive Date: Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatogra	phy											
EPA300.0 Fluorio	de in Liquid "As Re	eceived"										
Fluoride	•	0.332	0.033	0.100	mg/L		1	MAR1	12/07/16	1747	1618153	1
Metals Analysis-	ICP-MS											
200.8/200.2 NPI	DES Metals "As Red	ceived"										
Lithium		14.2	2.00	10.0	ug/L	1.00	1	BAJ	11/28/16	2333	1617950	2
Rad Gas Flow Pr	oportional Counting	g										
GFPC, Ra228, Li	quid "As Received"	"										
Radium-228		2.30	1.50	3.00	pCi/L			AXM6	12/13/16	1124	1619875	3
Rad Radium-226												
Lucas Cell, Ra22	6, liquid "As Recei	ved"										
Radium-226	•	1.34	0.364	1.00	pCi/L			LXP1	12/14/16	0815	1620874	4
The following Pr	ep Methods were pe	erformed:										
Method	Description	n		Analyst	Date	ı	Time	e Pr	ep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		CXW4	11/21/16		1620	16	17949			

The	follow	vina A	nalvitice	al Mati	hode w	ere perforn	and.
- i ne	10110v	viiig A	naivuca	ıı ivieti	HOUS W	ere berrorn	iea:

Method Description **Analyst Comments** EPA 300.0 2 EPA 200.8 SC\_NPDES 3 EPA 904.0/SW846 9320 Modified

Surrogate/Tracer Recovery Test Result Nominal Recovery% Acceptable Limits

EPA 903.1 Modified

Barium-133 Tracer (15%-125%) GFPC, Ra228, Liquid "As Received" 88.3

#### **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

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

## **Certificate of Analysis**

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: December 14, 2016

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: API-05 Sample ID: 411026004 Matrix: Ground Water Collect Date: 15-NOV-16 13:25

18-NOV-16 Receive Date: Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograpl	hy											
EPA300.0 Fluoride	e in Liquid "As Re	eceived"										
Fluoride	J	0.0839	0.033	0.100	mg/L		1	MAR1	12/07/16	1815	1618153	1
Metals Analysis-IC	CP-MS											
200.8/200.2 NPDI	ES Metals "As Red	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	11/28/16	2336	1617950	2
Rad Gas Flow Prop	portional Counting	9										
GFPC, Ra228, Liq	uid "As Received'	•										
Radium-228		1.56	1.52	3.00	pCi/L			AXM6	12/13/16	1125	1619875	3
Rad Radium-226												
Lucas Cell, Ra226	, liquid "As Receiv	ved"										
Radium-226	_	0.396	0.271	1.00	pCi/L			LXP1	12/14/16	0815	1620874	4
The following Prep	Methods were pe	erformed:										
Method	Description	n		Analyst	Date	7	Γime	e Pro	ep Batch			
EPA 200.2	ICP-MS 200.2	2 PREP		CXW4	11/21/16	1	620	161	17949			
TD1 - C-11 - ' A	.1		1.									

The following Analytical Methods were performed:

Method Description **Analyst Comments** EPA 300.0 2 EPA 200.8 SC\_NPDES 3 EPA 904.0/SW846 9320 Modified EPA 903.1 Modified

Surrogate/Tracer Recovery Test Result Nominal Recovery% Acceptable Limits 90.3 (15%-125%)

Barium-133 Tracer GFPC, Ra228, Liquid "As Received"

#### **Notes:**

Column headers are defined as follows:

DF: Dilution Factor Lc/LC: Critical Level PF: Prep Factor DL: Detection Limit MDA: Minimum Detectable Activity **RL**: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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

## **Certificate of Analysis**

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: December 14, 2016

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: API-04
Sample ID: 411026005
Matrix: Ground Water
Collect Date: 15-NOV-16 14:35

Receive Date: 18-NOV-16 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	e Batch	Method
Ion Chromatograp	phy											
EPA300.0 Fluorio	de in Liquid "As Re	eceived"										
Fluoride	•	0.357	0.033	0.100	mg/L		1	MAR1	12/07/16	1844	1618153	1
Metals Analysis-l	ICP-MS											
200.8/200.2 NPI	DES Metals "As Re	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	11/28/16	2344	1617950	2
Rad Gas Flow Pro	oportional Counting	g										
GFPC, Ra228, Li	quid "As Received"	"										
Radium-228	U	ND	1.52	3.00	pCi/L			AXM6	12/13/16	1125	1619875	3
Rad Radium-226												
Lucas Cell, Ra22	6, liquid "As Recei	ved"										
Radium-226	•	1.59	0.364	1.00	pCi/L			LXP1	12/14/16	0815	1620874	4
The following Pro	ep Methods were pe	erformed:										
Method	Description	n		Analyst	Date	,	Time	e Pr	ep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		CXW4	11/21/16		1620	16	17949			

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	

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

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: December 14, 2016

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: API-03 Sample ID: 411026006

Matrix: Ground Water
Collect Date: 15-NOV-16 15:50
Receive Date: 18-NOV-16
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograp	ohy											
EPA300.0 Fluorid	le in Liquid "As Re	ceived"										
Fluoride	-	0.759	0.033	0.100	mg/L		1	MAR1	12/07/16	1913	1618153	1
Metals Analysis-I	CP-MS											
200.8/200.2 NPD	ES Metals "As Red	ceived"										
Lithium		80.0	2.00	10.0	ug/L	1.00	1	BAJ	11/28/16	2346	1617950	2
Rad Gas Flow Pro	portional Counting	Ţ										
GFPC, Ra228, Lio	quid "As Received"	'										
Radium-228	U	ND	1.76	3.00	pCi/L			AXM6	12/13/16	1125	1619875	3
Rad Radium-226												
Lucas Cell, Ra226	6, liquid "As Receiv	ved"										
Radium-226	•	1.07	0.248	1.00	pCi/L			LXP1	12/14/16	0815	1620874	4
The following Pre	p Methods were pe	erformed:										
Method	Description	1		Analyst	Date	7	Γime	e Pro	ep Batch			
EPA 200.2	ICP-MS 200.2	2 PREP		CXW4	11/21/16	1	1620	161	17949			
The fellowing Ar	olutical Mathada		and.									

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"			86.4	(15%-125%)

#### **Notes:**

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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

## **Certificate of Analysis**

Report Date: December 14, 2016

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: API-02 Sample ID: 411026007 Matrix: Ground Water Collect Date: 15-NOV-16 16:45

18-NOV-16 Receive Date: Client Collector:

Project: SCEG01716c Client ID: GEEL003

RL Qualifier DL Units PF DF Analyst Date Parameter Result Time Batch Method Ion Chromatography EPA300.0 Fluoride in Liquid "As Received" 0.033 Fluoride 0.391 0.100 mg/L MAR1 12/07/16 1942 1618153 1 Metals Analysis-ICP-MS 200.8/200.2 NPDES Metals "As Received" Lithium 10.0 11/28/16 2349 1617950 21.3 2.00 ug/L 1.00 1 BAJ Rad Gas Flow Proportional Counting GFPC, Ra228, Liquid "As Received" Radium-228 ND AXM6 12/13/16 1127 1619875 1.70 3.00 pCi/L Rad Radium-226 Lucas Cell, Ra226, liquid "As Received" Radium-226 0.608 0.427 1.00 pCi/L LXP1 12/14/16 0815 1620874 The following Prep Methods were performed: Method Date Prep Batch Description Analyst Time EPA 200.2 ICP-MS 200.2 PREP CXW4 11/21/16 1620 1617949

The following Analytical Methods were performed:

Method Description Analyst Comments EPA 300.0

EPA 200.8 SC\_NPDES

2

3 EPA 904.0/SW846 9320 Modified

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 PF: Prep Factor DL: Detection Limit MDA: Minimum Detectable Activity **RL**: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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

## **Certificate of Analysis**

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: December 14, 2016

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: FB-01 Sample ID: 411026008 Matrix: Ground Water Collect Date: 16-NOV-16 07:20

18-NOV-16 Receive Date: Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograp	hy											
EPA300.0 Fluoride	e in Liquid "As Re	eceived"										
Fluoride	U	ND	0.033	0.100	mg/L		1	MAR1	12/08/16	0100	1618154	1
Metals Analysis-IO	CP-MS											
200.8/200.2 NPD	ES Metals "As Red	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	11/28/16	2352	1617950	2
Rad Gas Flow Pro	portional Counting	<u> </u>										
GFPC, Ra228, Liq	uid "As Received'	'										
Radium-228	U	ND	1.66	3.00	pCi/L			AXM6	12/13/16	1127	1619875	3
Rad Radium-226												
Lucas Cell, Ra226	, liquid "As Receiv	ved"										
Radium-226	U	ND	0.340	1.00	pCi/L			LXP1	12/14/16	0850	1620874	4
The following Pre	p Methods were pe	erformed:										
Method	Description	1		Analyst	Date	-	Гіте	Pre	ep Batch			
EPA 200.2	ICP-MS 200.2	2 PREP		CXW4	11/21/16		1620	161	17949			
The following An	alytical Methods v	vere nerforn	ned:									

The following Analytical Methods were performed:

Method Description **Analyst Comments** EPA 300.0

EPA 200.8 SC\_NPDES

3 EPA 904.0/SW846 9320 Modified

EPA 903.1 Modified

Surrogate/Tracer Recovery Test Result Nominal Recovery% Acceptable Limits Barium-133 Tracer 97.9 (15%-125%) GFPC, Ra228, Liquid "As Received"

#### **Notes:**

Column headers are defined as follows:

DF: Dilution Factor Lc/LC: Critical Level PF: Prep Factor DL: Detection Limit MDA: Minimum Detectable Activity **RL**: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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

## **Certificate of Analysis**

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: December 14, 2016

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner
Project: Wateree CCR

Client Sample ID: API-01
Sample ID: 411026009
Matrix: Ground Water

Collect Date: 16-NOV-16 08:05
Receive Date: 18-NOV-16
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in	n Liquid "As Re	eceived"										
Fluoride	_	0.334	0.033	0.100	mg/L		1	MAR1	12/08/16	0227	1618154	1
Metals Analysis-ICP-	-MS											
200.8/200.2 NPDES	Metals "As Red	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	11/28/16	2354	1617950	2
Rad Gas Flow Propor	tional Counting	3										
GFPC, Ra228, Liquid	l "As Received"	1										
Radium-228	U	ND	1.36	3.00	pCi/L			AXM6	12/13/16	1127	1619875	3
Rad Radium-226												
Lucas Cell, Ra226, lie	quid "As Recei	ved"										
Radium-226	_	0.754	0.265	1.00	pCi/L			LXP1	12/14/16	0850	1620874	4
The following Prep M	lethods were pe	erformed:										
Method	Description	n		Analyst	Date	7	Γime	Pro	ep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		CXW4	11/21/16	]	1620	161	17949			

The following Analytical Methods were performed:

MethodDescriptionAnalyst Comments1EPA 300.02EPA 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" 104 (15%-125%)

#### **Notes:**

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: December 14, 2016

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner
Project: Wateree CCR

Client Sample ID: API-99
Sample ID: 411026010
Matrix: Ground Water

Collect Date: 16-NOV-16 08:15
Receive Date: 18-NOV-16
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in	n Liquid "As Re	eceived"										
Fluoride	•	0.339	0.033	0.100	mg/L		1	MAR1	12/08/16	0256	1618154	1
Metals Analysis-ICP-	-MS											
200.8/200.2 NPDES	Metals "As Red	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	11/28/16	2357	1617950	2
Rad Gas Flow Propor	tional Counting	g										
GFPC, Ra228, Liquid	l "As Received"	"										
Radium-228		1.43	1.38	3.00	pCi/L			AXM6	12/13/16	1127	1619875	3
Rad Radium-226												
Lucas Cell, Ra226, lie	quid "As Recei	ved"										
Radium-226	-	0.535	0.432	1.00	pCi/L			LXP1	12/14/16	0850	1620874	4
The following Prep M	lethods were pe	erformed:										
Method	Description	n		Analyst	Date	-	Гim	Pr	ep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		CXW4	11/21/16		1620	16	17949			

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

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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

## **QC Summary**

Report Date: December 14, 2016

Page 1 of 4

GEL Engineering, LLC 2040 Savage Rd Charleston, South Carolina

Robert Gardner

Workorder: 411026

**Contact:** 

Parmname		NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography												
Batch 1618153												
QC1203674927 411027002 Fluoride	DUP		U	ND	U	ND	mg/L	N/A			MAR1	12/07/16 22:0
QC1203674926 LCS Fluoride		2.50				2.53	mg/L		101	(90%-110%)		12/07/16 16:2
QC1203674925 MB Fluoride					U	ND	mg/L					12/07/16 15:5
QC1203674928 411027002 Fluoride	PS	2.50	U	ND		2.54	mg/L		102	(90%-110%)		12/07/16 22:3
Batch 1618154												
QC1203674931 411026008 Fluoride	DUP		U	ND	U	ND	mg/L	N/A			MAR1	12/08/16 01:2
QC1203674932 411027007 Fluoride	DUP		U	ND	U	ND	mg/L	N/A				12/08/16 08:4
QC1203674930 LCS Fluoride		2.50				2.56	mg/L		103	(90%-110%)		12/08/16 00:3
QC1203674929 MB Fluoride					U	ND	mg/L					12/08/16 00:0
QC1203674933 411026008 Fluoride	PS	2.50	U	ND		2.45	mg/L		97.9	(90%-110%)		12/08/16 01:5
QC1203674934 411027007 Fluoride	PS	2.50	U	ND		2.55	mg/L		102	(90%-110%)		12/08/16 09:1
Metals Analysis - ICPMS Batch 1617950												
QC1203674269 411026001 Lithium	DUP		J	2.33	J	2.25	ug/L	3.58	<b>\</b>	(+/-10.0	) BAJ	11/28/16 23:2
QC1203674268 LCS Lithium		50.0				50.4	ug/L		101	(80%-120%)		11/28/16 23:1
QC1203674267 MB Lithium					U	ND	ug/L					11/28/16 23:1
QC1203674271 411026001	MS					55.2				(75%-125%)		

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

# **QC Summary**

Workorder: 411026						<del></del>				Page 2 of 4
Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range Anlst	Date Time
Metals Analysis - ICPMS Batch 1617950										
Lithium	50.0	J	2.33			ug/L		106		11/28/16 23:25
QC1203674273 411026001 SDILT Lithium	•	J	2.33	U	ND	ug/L	N/A		(0%-10%) BAJ	11/28/16 23:28
Batch 1620155 —										
QC1203680215 410911011 DUP Lithium		U	ND	J	2.10	ug/L	200		BAJ	11/30/16 19:13
QC1203680214 LCS Lithium	50.0				50.1	ug/L		100	(80%-120%)	11/30/16 19:07
QC1203680213 MB Lithium				U	ND	ug/L				11/30/16 19:05
QC1203680216 410911011 MS Lithium	50.0	U	ND		47.2	ug/L		90.4	(75%-125%)	11/30/16 19:15
QC1203680217 410911011 SDILT Lithium	,	U	ND	U	ND	ug/L	N/A		(0%-10%)	11/30/16 19:18
Rad Gas Flow Batch 1619875 ——										
QC1203679413 411026008 DUP Radium-228		U	1.52	U	1.30	pCi/L	N/A		N/A AXM6	12/13/16 11:28
QC1203679414 LCS Radium-228	21.5				24.0	pCi/L		111	(75%-125%)	12/13/16 11:30
QC1203679412 MB Radium-228				U	0.751	pCi/L				12/13/16 11:28
Rad Ra-226 Batch 1620874 ——										
QC1203682147 411026001 DUP Radium-226			1.98		1.32	pCi/L	40.5*		(0%-20%) LXP1	12/14/16 09:20
QC1203682149 LCS Radium-226	24.4				20.4	pCi/L		83.8	(75%-125%)	12/14/16 09:20
QC1203682146 MB Radium-226					0.327	pCi/L				12/14/16 09:20
QC1203682148 411026001 MS Radium-226	122		1.98		122	pCi/L		98.2	(75%-125%)	12/14/16 09:20

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

## **QC Summary**

Page 3 of 4 Parmname  $\mathbf{OC}$ Units

#### Sample Qual **NOM** RPD% REC% Range Anlst Date Time

#### Notes:

Workorder:

The Qualifiers in this report are defined as follows:

Analyte is a Tracer compound

411026

- < Result is less than value reported
- > Result is greater than value reported
- В The target analyte was detected in the associated blank.
- Results are either below the MDC or tracer recovery is low BD
- Е % difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- Е General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- Failed analysis. FA
- Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed FΒ invalid for reporting to regulatory agencies
- Η 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
- One or more quality control criteria have not been met. Refer to the applicable narrative or DER. Q
- 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.
- Λ 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

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

## **QC Summary**

Workorder: 411026

Page 4 of 4

Parmname NOM Sample Qual QC Units RPD% REC% Range Anlst Date Time

- 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
  - h Preparation or preservation holding time was exceeded

reporting purposes

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.  $^{\circ}$  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.

C 30 l and go			
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;	GEL Chain of Custody and	Custody and Analytical Request	GEL Laboratories, LLC 2040 Savage Road
GEL Quote #:			Charleston, SC 29407
OPO Number: GEL Wo	GEL Work Order Number:		Phone: (843) 556-8171 Fax: (843) 766-1178
Client Name: SCANA	Phone #:	Sample Analysis Requested (5) (Fil	(Fill in the number of containers for each test)
Project/Site Name: Wateree CCR FGD/API	Fax #:		< Preservative Type (6)
Address:			
Collected by: Acway H. Send Results To:	ults To:	30 130 20 130	Comments Note: extra sample is
Sample ID * For composites - indicate start and stop date/time	*Date Collected Collected (Officered QC Code Field Sample (Milliary) (Milliar	Radiosctive Total numl Cuckny  Cuckny  Luckny  Luckny	required for sample specific QC
FGD-01	32 5 5 5000 315111	. m	
Mw-IA	1 1 2 Sobo 5 1 En		
Mw-B	11/15/16 (220 N N 6W		
401-05	7		
Ap1-04	35 V V SEN 1/5/21		
AP1-03	11 1550 N N GW	~	
AP1-02	35 N N Shor 11/51 W		
FB-01	my N N 0260 911 71111		
AP1-01	W5 7 7 5080 91 91 V	- Control of the Cont	
Ap1-99	11/16 0815 N N GW		
TAT Requested: Normal: X Rush: Specify:	(Subject to Surcharge) Fax Results: Yes /	No Circle Deliverable: C of A / QC Summary	mary / Level 1 / Level 2 / Level 3 / Level 4
Remarks: Are there any known hazards applicable to these samples? If so, please list the hazards	these samples? If so, please list the hazards		Sample Collection Time Zone
use EPA nethods			.5
Chain of Custody Signatures	dy Signatures	Sample Shippi	Sample Shipping and Delivery Details
I) Date	Received by (signed) Date Time	GEL PM:	
1 0 0 2) m/1 1 10 10 1	1. 15m/londes 1. 1. 1. 16 081	OSIO Method of Shipment:	Date Shipped:
2 Philler Com 11/15/16 16 45	25hol 11/18/16 10th	8 Airbill#:	
	3 Aboy Bons 11-18-16 125	S Airbill#;	
1.) Chain of Custody Number = Client Defermified 2.) OC Codes: N = Normal Sample, The Blank FD = Field Duplicate, EB = Equipment Blank. MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grap, C = Compositor	Z Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike D	Duplicate Sample, G = Grab, C = Composite	For Lab Receiving Use Only

WHITE = LABORATORY

5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1).

3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.

4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, SO=Soil. SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil. F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal

YELLOW = FILE

PINK = CLIENT

metals = 14.3°C Custody Seal Intact?

6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank

oPage: 2 of 2				***************************************	9	\ *	,,,,	8.4		1	400		B	il Labo	GEL Laboratories, LLC	TLC		
GEL Quote #:				custony and Analytical Request	ē	Y	7		<b>=</b>	Ī,	202		දී ට්	40 Sava arlestor	2040 Savage Road Charleston, SC 29407	107		
COC Number (1):  POO Number:  GEL Wo	GEL Work Order Number:	ber:	F	411026	9								Å.	one: (8	Phone: (843) 556-8171	3171		
Client Name: SCANA		Phone #:						Sample	Anal	ysis R	Sample Analysis Requested (5)		Fill in 1	the nur	nber of	containe	(Fill in the number of containers for each test)	
Project/Site Name: Waterel Coll FGD/API	Ę.	Fax #:				Should this	ļ	ners Z	2				-				< Preservative Type (6)	(ype (6)
Address:		,				sample be considered:				ļ				-		<u> </u>		
Collected by: Acron 471 Send Results To:	ults To:					-	1	10 199	0 -	3							Comments Note: extra sample is	ts nple is
Sample ID * For composites - indicate start and stop date/time	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code	Field Sample Filtered (1) Matrix (4)	Sample Matrix (4)	Sadioactive	ISCA Regula	Total numl RCC 228	!7	FRAGRIS							required for sample specific QC	ample C
FGD-03	3	2200	2	S	3.9		<del>                                     </del>		<u> </u>	; necessary		1	-	-				
FGD - 03	2 7 3	520)	7	Z	3		10	-	-	,,,,,,,,,		<del> </del>	-	-				
FGD-04	21214	28.5	2	Z	39		<u> </u>					-	-	-		-		
FGD-05	3 3	1230	2	7	39	<u> </u>		100		*******		1	-			-		
							-		-			-	<del> </del>	-			, .	
						<del> </del>	+	-	-				-	<del> </del>				
						1			ļ	-		+	-	-				
							-						-					
									ļ			<u> </u>						
TAT Requested: Normal: X Rush: Specify:	(Subject to Surcharge)	e) Fax Results:	ults:	Yes	/	No		Circle Deliverable: C of A	Deliver	able: (	ŧ	/ QC Summary	ummar	1	evel 1 /	Level	/ Level 1 / Level 2 / Level 3 /	Level 4
Remarks: Are there any known hazards applicable to these samples? If so, please list the hazards USE EPA MeMudS	these samples?	If so, plea	se list	the haza	rds						1	Andreas Programmes		l	Sample C Eastern Central	Collecti n P	· [	
	3.5					-									Mountain	tain		
, in a	dy Signatures				***************************************	1					Samp	le Ship	ping a	nd De	Sample Shipping and Delivery Details	etails		
Kennquisned by (Signed) Date Time	Keceived by (signed)		일	n e		<u>0</u>	GEL PM:	ij										
1 Ce 1/2 11/11/12 08 10	ZZWZ	drags.		17116 OS 10 Method of Shipment:	28	<u>0</u>	ethod o	Shipme	ent:				Date	Date Shipped:	ed:			
2 Thillim Come 11/18/16 1646	N. J. W.	5	- Carlon	2/18/	8500	A A	Airbill#:											
3 Som 11-18-16 1875	3 they bon	و	. 7	11-18-16	7	25% Airbill#:	rbill#:											
1.) Chain of Custody Number = Client Determined 2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Compossite	3 = Equipment Blank, M	S = Matrix Spil	ke Sample	, MSD = Ma	trix Spike	Duplicate	Sample	, G = Gra	b, C = C	omposite						For L	For Lab Receiving Use Only	Onty
3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.	as field filtered or - N - f	or sample was i	oo field fi	Itered.											<u></u>		Custody Seal Intoct?	

YELLOW = FILE WHITE = LABORATORY

4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Water, W=Water, SO=Soil. SD=Sediment, SL=Sludge, SS=Solid Waste. O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal

5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1).

PINK = CLIENT

6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank

Custody Seal Intact? YES NO

SAMPLE RECEIPT & REVIEW FORM

Client: SCEG SDG/AR/COC/Work Order: 411024							
Received By: SB				Date Received: 18-NOV - 2016			
Sus	pected Hazard Information	Yes	ž	*If	Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further estigation.		
	C/Samples marked as radioactive?		1	-	ximum Net Counts Observed* (Observed Counts - Area Background Counts):		
	sified Radioactive II or III by RSO?		Z	If y	es, Were swipes taken of sample containers < action levels?		
	C/Samples marked containing PCBs? cage, COC, and/or Samples marked as		12	_			
bery	llium or asbestos containing?		1	IF W	S Samples are to be represented as CaCa. On the Line of the CaCa.		
Ship	ped as a DOT Hazardous?		-	Haz	es, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.  and Class Shipped:  UN#:		
Sam	ples identified as Foreign Soil?		1		C1101		
	Sample Receipt Criteria	Yes	¥Z	å	Comments/Qualifiers (Required for Non-Conforming Items)		
1	Shipping containers received intact and sealed?	1			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)		
2	Samples requiring cold preservation within $(0 \le 6 \text{ deg. C})$ ?*	/			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius SEE TEMPS BELOW		
2a	Daily check performed and passed on IR temperature gun?	1			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): E 510 2009188		
3	Chain of custody documents included with shipment?	/					
4	Sample containers intact and sealed?	1			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)		
5	Samples requiring chemical preservation at proper pH?	✓			Sample ID's, containers affected and observed pH:		
6	Do Low Level Perchlorate samples have headspace as required?		1		If Preservation added. Lot#: Sample ID's and containers affected:		
7	VOA vials contain acid preservation?		1		(If unknown, select No)		
8	VOA vials free of headspace (defined as < 6mm bubble)?	1			Sample ID's and containers affected:		
9	Are Encore containers present?			5	(If yes, immediately deliver to Volatiles laboratory)		
10	Samples received within holding time?	/			ID's and tests affected:		
11	Sample ID's on COC match ID's on bottles?	8			Sample ID's and containers affected:		
12	Date & time on COC match date & time on bottles?	♪			Sample ID's affected:		
	Number of containers received match number indicated on COC?	1			Sample ID's affected:		
14	Are sample containers identifiable as GEL provided?	1					
15	COC form is properly signed in relinquished/received sections?	/					
	Carrier and tracking number.  ments (Use Continuation Form if needed):				FedEx Air FedEx Ground UPS Field Services Courier Other  22°c, 21°c, 21°c, 21°c, 1°c, 2°e		
<u></u>	PM (or PMA) rev	view:	Initia	als _	OU Date 1/21/10 Page 1 of		
					GL-CHL-SR-001 Rev 3		

## Technical Case Narrative GEL Engineering, LLC (GEEL) SDG #: 411026

## **Metals**

<u>Product:</u> Determination of Metals by ICP-MS <u>Analytical Method:</u> EPA 200.8 SC\_NPDES <u>Analytical Procedure:</u> GL-MA-E-014 REV# 28

**Analytical Batch:** 1617950

**Preparation Method:** EPA 200.2

**Preparation Procedure:** GL-MA-E-016 REV# 16

**Preparation Batch:** 1617949

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

<b>GEL Sample ID#</b>	Client Sample Identification
411026001	FGD-1
411026002	MW-1A
411026003	MW-8
411026004	API-05
411026005	API-04
411026006	API-03
411026007	API-02
411026008	FB-01
411026009	API-01
411026010	API-99
1203674267	Method Blank (MB)ICP-MS
1203674268	Laboratory Control Sample (LCS)
1203674273	411026001(FGD-1L) Serial Dilution (SD)
1203674269	411026001(FGD-1D) Sample Duplicate (DUP)
1203674271	411026001(FGD-1S) Matrix Spike (MS)

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

### **Data Summary:**

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

<u>Product:</u> Determination of Metals by ICP-MS <u>Analytical Method:</u> EPA 200.8 SC\_NPDES <u>Analytical Procedure:</u> GL-MA-E-014 REV# 28

**Analytical Batch:** 1620155

**Preparation Method:** EPA 200.2

**Preparation Procedure:** GL-MA-E-016 REV# 16

**Preparation Batch:** 1620154

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

<b>GEL Sample ID#</b>	Client Sample Identification
411026011	FGD-02
411026012	FGD-03
411026013	FGD-04
411026014	FGD-05
1203680213	Method Blank (MB)ICP-MS
1203680214	Laboratory Control Sample (LCS)
1203680217	410911011(NonSDGL) Serial Dilution (SD)
1203680215	410911011(NonSDGD) Sample Duplicate (DUP)
1203680216	410911011(NonSDGS) Matrix Spike (MS)

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

#### **Data Summary:**

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

## **General Chemistry**

**Product: Ion Chromatography Analytical Method:** EPA 300.0

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

**Analytical Batch:** 1618153

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

<b>GEL Sample ID#</b>	Client Sample Identification
411026001	FGD-1
411026002	MW-1A
411026003	MW-8
411026004	API-05
411026005	API-04
411026006	API-03
411026007	API-02
1203674925	Method Blank (MB)
1203674926	Laboratory Control Sample (LCS)
1203674927	411027002(MW-6LF) Sample Duplicate (DUP)
1203674928	411027002(MW-6LF) Post Spike (PS)

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

#### **Data Summary:**

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

## **Product:** Ion Chromatography

**Analytical Method:** EPA 300.0

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

Analytical Batch: 1618154

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

GEL Sample ID#	Client Sample Identification
411026008	FB-01
411026009	API-01
411026010	API-99
411026011	FGD-02
411026012	FGD-03
411026013	FGD-04
411026014	FGD-05
1203674929	Method Blank (MB)
1203674930	Laboratory Control Sample (LCS)
1203674931	411026008(FB-01) Sample Duplicate (DUP)
1203674932	411027007(MW-11LF) Sample Duplicate (DUP)
1203674933	411026008(FB-01) Post Spike (PS)
1203674934	411027007(MW-11LF) Post Spike (PS)

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

#### **Data Summary:**

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

### **Miscellaneous Information**

#### **Manual Integrations**

Samples 1203674932 (MW-11LFDUP), 411026011 (FGD-02), 411026013 (FGD-04) and 411026014 (FGD-05) were manually integrated to correctly position the baseline as set in the calibration standards.

## **Radiochemistry**

Product: GFPC, Ra228, Liquid

**Analytical Method:** EPA 904.0/SW846 9320 Modified **Analytical Procedure:** GL-RAD-A-009 REV# 17

**Analytical Batch:** 1619875

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

GEL Sample ID#	Client Sample Identification
411026001	FGD-1
411026002	MW-1A
411026003	MW-8
411026004	API-05
411026005	API-04
411026006	API-03
411026007	API-02
411026008	FB-01
411026009	API-01

411026010	API-99
411026011	FGD-02
411026012	FGD-03
411026013	FGD-04
411026014	FGD-05
1203679412	Method Blank (MB)
1203679413	411026008(FB-01) Sample Duplicate (DUP)
1203679414	Laboratory Control Sample (LCS)

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

#### **Data Summary:**

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

Product: Lucas Cell, Ra226, liquid Analytical Method: EPA 903.1 Modified

Analytical Procedure: GL-RAD-A-008 REV# 14

**Analytical Batch:** 1620874

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

<b>GEL Sample ID#</b>	<b>Client Sample Identification</b>
411026001	FGD-1
411026002	MW-1A
411026003	MW-8
411026004	API-05
411026005	API-04
411026006	API-03
411026007	API-02
411026008	FB-01
411026009	API-01
411026010	API-99
411026011	FGD-02
411026012	FGD-03
411026013	FGD-04
411026014	FGD-05
1203682146	Method Blank (MB)
1203682147	411026001(FGD-1) Sample Duplicate (DUP)
1203682148	411026001(FGD-1) Matrix Spike (MS)
1203682149	Laboratory Control Sample (LCS)

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

#### **Data Summary:**

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

applicable, with the following exceptions.

## **Quality Control (QC) Information**

#### **QC Information**

All of the QC samples meet the required acceptance limits with the following exceptions: The sample and the duplicate, 1203682147 (FGD-1DUP) and 411026001 (FGD-1), did not meet the relative percent difference requirement; however, they do meet the relative error ratio requirement with a value of 1.7699.

### **Miscellaneous Information**

## **Additional Comments**

The matrix spike, 1203682148 (FGD-1MS), aliquot was reduced to conserve sample volume.

#### **Certification Statement**

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



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB24618

Wateree Well FGD-01 (NPDES/CCR)

Date & Time Sampled: November 15, 2016 08:05
Date & Time Submitted: November 17, 2016 08:10

Collected by: A.HILL Location Code: WAFGD01TDS

FGD-01 Login Record File: 161117004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	7.21	0.5	mg/L	11/23/16 23:50	LS
pH by SM4500HB	5.07	0.00	S.U.	11/17/16 12:30	BF
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	LESS THAN	0.5	mg/L	11/23/16 23:50	LS
Total Dissolved Solid-SM2540C	49	2.0	mg/L	11/18/16 13:00	BF

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB24619

Wateree NPDES Well MW 1 (NPDES)

Date & Time Sampled: November 15, 2016 09:05

Date & Time Submitted: November 17, 2016 08:10

Collected by: A.HILL Location Code: WAG01TDS

MW 1 Login Record File: 161117004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	5.41	0.5	mg/L	11/23/16 23:50	LS
pH by SM4500HB	4.66	0.00	S.U.	11/17/16 12:30	BF
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	LESS THAN	0.5	mg/L	11/23/16 23:50	LS
Total Dissolved Solid-SM2540C	36	2.0	mg/L	11/18/16 13:00	BF



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB24620

Wateree Well MW 8 (NPDES/CCR)

Date & Time Sampled: November 15, 2016 12:20
Date & Time Submitted: November 17, 2016 08:10

Collected by: A.HILL Location Code: WAG08TDS

MW 8 Login Record File: 161117004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	5.14	0.5	mg/L	11/23/16 23:50	LS
pH by SM4500HB	5.05	0.00	S.U.	11/17/16 12:30	BF
Holding Time of 15 minutes has been ea	xceeded.				
Sulfates by IC EPA 300.0	LESS THAN	0.5	mg/L	11/23/16 23:50	LS
Total Dissolved Solid-SM2540C	380	2.0	mg/L	11/18/16 13:00	BF

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB24621

Wateree Well AP1-05 (NPDES/CCR)

Date & Time Sampled: November 15, 2016 13:25
Date & Time Submitted: November 17, 2016 08:10

Collected by: A.HILL Location Code: WAAP105TDS

AP1-05 Login Record File: 161117004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	19.6	0.5	mg/L	11/23/16 23:50	LS
pH by SM4500HB	6.32	0.00	S.U.	11/17/16 12:30	BF
Holding Time of 15 minutes has been	exceeded.				
Sulfates by IC EPA 300.0	0.934	0.5	mg/L	11/23/16 23:50	LS
Total Dissolved Solid-SM2540C	250	2.0	mg/L	11/18/16 13:00	BF



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB24622

Wateree Well AP1-04 (NPDES/CCR)

Date & Time Sampled: November 15, 2016 14:35
Date & Time Submitted: November 17, 2016 08:10

Collected by: A.HILL Location Code: WAAP104TDS

AP1-04 Login Record File: 161117004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	16.8	0.5	mg/L	11/23/16 23:50	LS
pH by SM4500HB	6.68	0.00	S.U.	11/17/16 12:30	BF
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	less than	0.5	mg/L	11/23/16 23:50	LS
Total Dissolved Solid-SM2540C	432	2.0	mg/L	11/18/16 13:00	BF



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

REPORT TO:

Mike Moore

Sample ID: AB24623

Wateree Well AP1-03 (NPDES/CCR)

Date & Time Sampled: November 15, 2016 15:50
Date & Time Submitted: November 17, 2016 08:10

Collected by: A.HILL Location Code: WAAP103TDS

AP1-03 Login Record File: 161117004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	20.7	0.5	mg/L	11/23/16 23:50	LS
pH by SM4500HB	6.76	0.00	S.U.	11/17/16 12:30	BF
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	55.4	0.5	mg/L	11/23/16 23:50	LS
Total Dissolved Solid-SM2540C	320	2.0	mg/L	11/18/16 13:00	BF



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB24624

Wateree Well AP1-02 (NPDES/CCR)

Date & Time Sampled: November 15, 2016 16:45
Date & Time Submitted: November 17, 2016 08:10

Collected by: A.HILL Location Code: WAAP102TDS

AP1-02 Login Record File: 161117004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	105	1.0	mg/L	11/23/16 23:50	LS
pH by SM4500HB	6.70	0.00	S.U.	11/17/16 12:30	BF
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	51.979	0.5	mg/L	11/23/16 23:50	LS
Total Dissolved Solid-SM2540C	419	2.0	mg/L	11/18/16 13:00	BF

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

REPORT TO:

Mike Moore

Sample ID: AB24626

Wateree Well AP1-01 (NPDES/CCR)

Date & Time Sampled: November 16, 2016 08:05

Date & Time Submitted: November 17, 2016 08:10

Collected by: A.HILL Location Code: WAAP101TDS

AP1-01 Login Record File: 161117004

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	157	1.0	mg/L	11/23/16 23:50	LS
pH by SM4500HB	6.73	0.00	S.U.	11/17/16 12:30	BF
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	8.626	0.5	mg/L	11/23/16 23:50	LS
Total Dissolved Solid-SM2540C	412	2.0	mg/L	11/18/16 13:00	BF

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB24596

Wateree Well FGD-01 TM (NPDES/CCR)

Date & Time Sampled: Date & Time Submitted: November 15, 2016 08:05

November 17, 2016 08:10

Collected by: A.HILL Location Code: WAFGD01TM

FGD-01 Login Record File: 161117002

10501	203.11.00014.11.0. 101111002				
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	11/17/16 16:03	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Barium (CWA) 200.7	78.9	10.0	ppb	11/17/16 14:46	MC
Beryllium EPA 200.7	Less than	2.0	ppb	11/17/16 14:46	MC
Boron - EPA 200.7	Less than	1000	ppb	11/17/16 14:46	МС
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Calcium EPA 200.7	821	100	ppb	11/17/16 14:46	MC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Cobalt by ICP_MS EPA 200.8	1.3	1.0	ppb	11/17/16 16:03	MC
Lead by ICP-MS EPA 200.8	1.0	1.0	ppb	11/17/16 16:03	MC
Lithium (CWA) 200.7	Less than	10.0	ppb	11/17/16 14:57	МС
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	11/18/16 13:52	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	11/17/16 16:03	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC

Approved By:
--------------



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB24597

Wateree NPDES Well MW 1 Total Metals (NPDES)

Date & Time Sampled:
Date & Time Submitted:

November 15, 2016 09:05 November 17, 2016 08:10

Collected by: A.HILL Location Code: WAG01TM

MW 1 Login Record File: 161117002

	2091111000141110. 1011111002				
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	11/17/16 16:03	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Barium (CWA) 200.7	55.5	10.0	ppb	11/17/16 14:46	MC
Beryllium EPA 200.7	Less than	2.0	ppb	11/17/16 14:46	MC
Boron - EPA 200.7	Less than	1000	ppb	11/17/16 14:46	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Calcium EPA 200.7	732	100	ppb	11/17/16 14:46	MC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Lead by ICP-MS EPA 200.8	1.6	1.0	ppb	11/17/16 16:03	MC
Lithium (CWA) 200.7	Less than	10.0	ppb	11/17/16 14:57	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	11/18/16 13:52	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	11/17/16 16:03	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC

Approved By:
--------------



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB24598

Wateree Well MW 8 TM (NPDES/CCR)

Date & Time Sampled:
Date & Time Submitted:

Collected by: A.HILL

November 15, 2016 12:20 November 17, 2016 08:10

Location Code: WAG08TM

MW 8 Login Record File: 161117002

Logit Necola File. 101117002					
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	11/17/16 16:03	MC
Arsenic by ICP_MS EPA 200.8	8.6	1.0	ppb	11/17/16 16:03	MC
Barium (CWA) 200.7	137	10.0	ppb	11/17/16 14:46	MC
Beryllium EPA 200.7	3.5	2.0	ppb	11/17/16 14:46	MC
Boron - EPA 200.7	Less than	1000	ppb	11/17/16 14:46	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Calcium EPA 200.7	23400	100	ppb	11/17/16 14:46	MC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Cobalt by ICP_MS EPA 200.8	24.3	1.0	ppb	11/17/16 16:03	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Lithium (CWA) 200.7	11.4	10.0	ppb	11/17/16 14:57	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	11/18/16 13:52	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Selenium by ICP-MS EPA 200.8	18.5	5.0	ppb	11/17/16 16:03	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC

Approved By:	_
--------------	---



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB24599

Wateree Well AP1-05 TM (NPDES/CCR)

Date & Time Sampled:
Date & Time Submitted:

Collected by: A.HILL

November 15, 2016 13:25 November 17, 2016 08:10

Location Code: WAAP105TM

AP1-05 Login Record File: 161117002

Completed Analysis Date & Time  11/17/16	MC MC MC
11/17/16 16:03 11/17/16 14:46	MC MC
11/17/16 14:46	MC
11/17/16 14:46	MC
11/17/16 14:46	MC
11/17/16 16:03	MC
11/17/16 14:46	MC
11/17/16 16:03	MC
11/17/16 16:03	MC
11/17/16 16:03	MC
11/17/16 14:57	MC
11/18/16 13:52	PRC
11/17/16 16:03	MC
11/17/16 16:03	MC
11/17/16 16:03	MC
	11/17/16



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB24600

Wateree Well AP1-04 TM (NPDES/CCR)

Date & Time Sampled:

November 15, 2016 14:35 08:10

Date & Time Submitted: November 17, 2016 Collected by: A.HILL Location Code: WAAP104TM

Login Record File: 161117002

AP1-04 Login Record File: 161117002					
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	11/17/16 16:03	МС
Arsenic by ICP_MS EPA 200.8	8.0	1.0	ppb	11/17/16 16:03	MC
Barium (CWA) 200.7	159	10.0	ppb	11/17/16 14:46	МС
Beryllium EPA 200.7	Less than	2.0	ppb	11/17/16 14:46	MC
Boron - EPA 200.7	2630	1000	ppb	11/17/16 14:46	МС
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Calcium EPA 200.7	115000	100	ppb	11/17/16 14:46	МС
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Lithium (CWA) 200.7	Less than	10.0	ppb	11/17/16 14:57	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	11/18/16 13:52	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	11/17/16 16:03	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC

Approved By: _	



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB24601

Wateree Well AP1-03 TM (NPDES/CCR)

Date & Time Sampled: Date & Time Submitted: November 15, 2016 15:50

November 17, 2016 08:10

Collected by: A.HILL Location Code: WAAP103TM

AP1-03 Login Record File: 161117002

711 1 00		101111002			
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	11/17/16 16:03	МС
Arsenic by ICP_MS EPA 200.8	1340	20.0	ppb	11/21/16 15:21	MC
Barium (CWA) 200.7	120	10.0	ppb	11/17/16 14:46	МС
Beryllium EPA 200.7	Less than	2.0	ppb	11/17/16 14:46	МС
Boron - EPA 200.7	1070	1000	ppb	11/17/16 14:46	МС
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Calcium EPA 200.7	61600	100	ppb	11/17/16 14:46	MC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Lithium (CWA) 200.7	80.1	10.0	ppb	11/17/16 14:57	МС
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	11/18/16 13:52	PRC
Molybdenum - EPA 200.8	19.9	1.0	ppb	11/17/16 16:03	МС
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	11/17/16 16:03	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB24602

Wateree Well AP1-02 TM (NPDES/CCR)

Date & Time Sampled:
Date & Time Submitted:

Collected by: A.HILL

November 15, 2016 16:45 November 17, 2016 08:10

Location Code: WAAP102TM

AP1-02 Login Record File: 161117002

/ II / V=					
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	11/17/16 16:03	MC
Arsenic by ICP_MS EPA 200.8	330	1.0	ppb	11/17/16 16:03	MC
Barium (CWA) 200.7	166	10.0	ppb	11/17/16 14:46	МС
Beryllium EPA 200.7	Less than	2.0	ppb	11/17/16 14:46	МС
Boron - EPA 200.7	1020	1000	ppb	11/17/16 14:46	МС
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Calcium EPA 200.7	66200	100	ppb	11/17/16 14:46	MC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Lithium (CWA) 200.7	20.3	10.0	ppb	11/17/16 14:57	МС
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	11/18/16 13:52	PRC
Molybdenum - EPA 200.8	51.2	1.0	ppb	11/17/16 16:03	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	11/17/16 16:03	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB24604

Wateree Well AP1-01 TM (NPDES/CCR)

Date & Time Sampled:
Date & Time Submitted:

November 16, 2016 08:05 November 17, 2016 08:10

Collected by: A.HILL Location Code: WAAP101TM

AP1-01 Login Record File: 161117002

711 1 01					
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	11/17/16 16:03	MC
Arsenic by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Barium (CWA) 200.7	215	10.0	ppb	11/17/16 14:46	МС
Beryllium EPA 200.7	Less than	2.0	ppb	11/17/16 14:46	МС
Boron - EPA 200.7	1330	1000	ppb	11/17/16 14:46	МС
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Calcium EPA 200.7	48500	100	ppb	11/17/16 14:46	MC
Chromium by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Cobalt by ICP_MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Lead by ICP-MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC
Lithium (CWA) 200.7	Less than	10.0	ppb	11/17/16 14:57	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	11/18/16 13:52	PRC
Molybdenum - EPA 200.8	5.6	1.0	ppb	11/17/16 16:03	MC
Selenium by ICP-MS EPA 200.8	Less than	5.0	ppb	11/17/16 16:03	MC
Thallium by ICP-MS EPA 200.8	Less than	1.0	ppb	11/17/16 16:03	MC

Approved By	<b>v</b> :		

# SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL GROUND-WATER MONITORING REPORT

Facility:	Wateree Station		Permi	t No.:	County: Richland
Date Sampled:	01/17/2017		_	Time Sampled:	12:00:00PM
	year-month-day (N	umerical)			
			T	STATION NUMBERS	
PARAMETE	R NUMBER	MW-AP-01A	MW-FGD-01		
NAME	Lab. Certificate No.	32006	32006		
Field pH S.U.		4.630	4.680		
Field Sp. Conduct	ivity micromhos/cm	42.000	53.000		
Field Turbidity N	ГИ	2.18	2.23		
ORP mV		172.700	166.200		
Oxygen, dissolved	l mg/L	4.110	2.290		
Temp (Celcius) de	egrees C	19.270	19.910		
Water level elevat	ion ft	115.48	116.26		

Date:

Authorized Release By:

# SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL GROUND-WATER MONITORING REPORT

Facility: Wateree Station		Perr	nit No.:		County: Rich	nland
Date Sampled: 01/18/2017				Time Sampled:	12:00:00PM	
year-month-day (N	Numerical)					
			STATION	N NUMBERS		
PARAMETER NUMBER	MW-AP-01	MW-AP-02	MW-AP-03	MW-AP-04	MW-AP-05	MW-AP-08
NAME Lab. Certificate No.	32006	32006	32006	32006	32006	32006
Field pH S.U.	6.690	6.480	6.570	6.530	5.810	5.710
Field Sp. Conductivity micromhos/cm	734.000	566.000	601.000	728.000	498.000	528.000
Field Turbidity NTU	3.22	6.15	0.78	7.54	7.00	5.30
ORP mV	-117.500	-104.200	-107.600	-114.700	-26.700	7.900
Oxygen, dissolved mg/L	0.380	0.400	0.310	0.610	0.380	0.440
Temp (Celcius) degrees C	22.250	20.280	20.810	18.950	19.470	20.340
Water level elevation ft	88.64	85.68	87.20	87.19	82.89	83.04

Date:

Authorized Release By:

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

# Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC Client SDG: 414773 GEL Work Order: 414773

### 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.

	Johne Cotes		
Reviewed by			

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

**Certificate of Analysis** 

Project:

Units

Result

Nominal

Recovery%

88.2

Acceptable Limits

(15%-125%)

Client ID:

PF

SCEG01716c

GEEL003

Report Date: February 16, 2017

DF Analyst Date Time Batch Method

Company:

GEL Engineering, LLC

Address:

2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: FGD-01

Sample ID:

414773008

Matrix: Collect Date: Ground Water

Receive Date:

17-JAN-17 15:20 20-JAN-17

Result

Collector:

Parameter

Client

Qualifier

Ion Chromatography												
EPA300.0 Fluoride in I	iquid "As Recei	ived"										
Fluoride	U	ND	0.033	0.100	mg/L		1	MAR1	01/25/17	0941	1633301	1
Metals Analysis-ICP-M	S											
200.8/200.2 NPDES M	letals "As Receiv	ved"										
Lithium	J	2.53	2.00	10.0	ug/L	1.00	1	BAJ	01/25/17	2004	1633222	2
Rad Gas Flow Proportion	onal Counting											
GFPC, Ra228, Liquid "	As Received"											
Radium-228		1.95	1.49	3.00	pCi/L			AXM6	02/10/17	1239	1635132	3
Rad Radium-226												
Lucas Cell, Ra226, liqu	id "As Received	<b>!"</b>										
Radium-226		1.50	0.374	1.00	pCi/L			LXP1	02/09/17	0930	1633271	4
The following Prep Me	thods were perfe	ormed:										
Method	Description			Analyst	Date	Τ	Γime	e Pr	ep Batch			_
EPA 200.2	ICP-MS 200.2 PI	REP		SXW1	01/23/17	0	)839	16	33221			
The following Analytic	cal Methods wer	e performed:										
Method	Description				A	nalyst	Coı	nment	s			
1	SW846 9056A					•						
2	EPA 200.8 SC_N	PDES										
3	EPA 904.0/SW84	6 9320 Modified										
2 3												

DL

RL

### **Notes:**

Barium-133 Tracer

Column headers are defined as follows:

Surrogate/Tracer Recovery

DF: Dilution Factor Lc/LC: Critical Level DL: Detection Limit PF: Prep Factor MDA: Minimum Detectable Activity **RL**: Reporting Limit

EPA 903.1 Modified

Test

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

GFPC, Ra228, Liquid "As Received"

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: February 16, 2017

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: API-01
Sample ID: 414773009
Matrix: Ground Water
Collect Date: 18-JAN-17 13:55

Receive Date: 20-JAN-17 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in	Liquid "As Re	eceived"										
Fluoride	•	0.372	0.033	0.100	mg/L		1	MAR1	01/25/17	1010	1633301	1
Metals Analysis-ICP-N	MS											
200.8/200.2 NPDES N	Metals "As Red	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	01/25/17	2014	1633222	2
Rad Gas Flow Proport	ional Counting	3										
GFPC, Ra228, Liquid	"As Received"	"										
Radium-228	U	ND	1.50	3.00	pCi/L			AXM6	02/10/17	1239	1635132	3
Rad Radium-226												
Lucas Cell, Ra226, liq	uid "As Recei	ved"										
Radium-226	U	ND	0.446	1.00	pCi/L			LXP1	02/09/17	0930	1633271	4
The following Prep M	ethods were pe	erformed:										
Method	Description	n		Analyst	Date	-	Гіте	Pr	ep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		SXW1	01/23/17	(	0839	163	33221			

The following Analytical Methods were performed:

Method Description Analyst Comments

SW846 9056A Analyst Comments

EPA 200.8 SC\_NPDES
 EPA 904.0/SW846 9320 Modified

EPA 904.0/3 w 840 9320 Modified
EPA 903.1 Modified

Surrogate/Tracer Recovery Test Result Nominal Recovery% Acceptable Limits

Barium-133 Tracer GFPC, Ra228, Liquid "As Received" 90.4 (15%-125%)

**Notes:** 

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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

**Certificate of Analysis** 

Project:

Units

Client ID:

PF

SCEG01716c

GEEL003

DF Analyst Date

92

(15%-125%)

Report Date: February 16, 2017

Time Batch Method

Company:

GEL Engineering, LLC

Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: API-99

Sample ID:

414773010

Matrix: Collect Date:

Parameter

Ground Water

Receive Date:

18-JAN-17 14:15 20-JAN-17

Result

Collector:

Client

Qualifier

Ion Chromatography										
EPA300.0 Fluoride in I	Liquid "As Rece	eived"								
Fluoride		0.361	0.033	0.100	mg/L	. 1	MAR1	01/25/17	1038 1633301	1
Metals Analysis-ICP-M	IS									
200.8/200.2 NPDES M	Ietals "As Recei	ived"								
Lithium	U	ND	2.00	10.0	ug/L	1.00 1	BAJ	01/25/17	2030 1633222	2
Rad Gas Flow Proportion	onal Counting									
GFPC, Ra228, Liquid "	'As Received"									
Radium-228	U	ND	1.55	3.00	pCi/L		AXM	5 02/10/17	1239 1635132	3
Rad Radium-226										
Lucas Cell, Ra226, liqu	id "As Receive	d"								
Radium-226		0.685	0.328	1.00	pCi/L		LXP1	02/09/17	0930 1633271	4
The following Prep Me	thods were perf	formed:								
Method	Description			Analyst	Date	Tin	ne Pi	ep Batch	1	
EPA 200.2	ICP-MS 200.2 P	PREP		SXW1	01/23/1	7 083	9 16	33221		
The following Analytic	cal Methods we	re performed:								
Method	Description					Analyst Co	omment	S		
1	SW846 9056A									
2	EPA 200.8 SC_N	NPDES								
3		46 9320 Modified								
4	EPA 903.1 Modi	fied								
Surrogate/Tracer Recovery Test Result Nominal Recovery% Acceptable Limits									nits	

DL

RL

### **Notes:**

Barium-133 Tracer

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

GFPC, Ra228, Liquid "As Received"

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: February 16, 2017

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: API-02 Sample ID: 414773011 Matrix: Ground Water Collect Date: 18-JAN-17 15:45

Receive Date: 20-JAN-17 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in	Liquid "As Re	eceived"										
Fluoride	-	0.430	0.033	0.100	mg/L		1	MAR1	01/25/17	1107	1633301	1
Metals Analysis-ICP-l	MS											
200.8/200.2 NPDES	Metals "As Red	ceived"										
Lithium		23.7	2.00	10.0	ug/L	1.00	1	BAJ	01/25/17	2033	1633222	2
Rad Gas Flow Proport	tional Counting	3										
GFPC, Ra228, Liquid	"As Received"	1										
Radium-228	U	ND	1.59	3.00	pCi/L			AXM6	02/10/17	1239	1635132	3
Rad Radium-226												
Lucas Cell, Ra226, liq	juid "As Recei	ved"										
Radium-226	-	1.06	0.423	1.00	pCi/L			LXP1	02/09/17	0930	1633271	4
The following Prep M	lethods were pe	erformed:										
Method	Description	n		Analyst	Date	-	Гітє	Pro	ep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		SXW1	01/23/17	(	0839	163	33221			

The following Analytical Methods were performed:

Method Description Analyst Comments

SW846 9056A

Analyst Comments

EPA 200.8 SC\_NPDES
 EPA 904.0/SW846 9320 Modified

EPA 904.0/3 w 840 9320 Modified

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

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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

**Certificate of Analysis** 

Project:

Result

Nominal

Recovery%

92.8

Acceptable Limits

(15%-125%)

Client ID:

SCEG01716c

GEEL003

Report Date: February 16, 2017

Company:

GEL Engineering, LLC

Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: API-03

Sample ID:

414773012

Matrix:

Ground Water

Collect Date:

18-JAN-17 16:25

Receive Date: Collector:

20-JAN-17 Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograph	ıy											
EPA300.0 Fluoride	in Liquid "As Re	ceived"										
Fluoride	-	0.672	0.033	0.100	mg/L		1	MAR1	01/25/17	1136	1633301	1
Metals Analysis-IC	P-MS											
200.8/200.2 NPDE	ES Metals "As Rec	ceived"										
Lithium		80.7	2.00	10.0	ug/L	1.00	1	BAJ	01/25/17	2035	1633222	2
Rad Gas Flow Prop	ortional Counting	ŗ										
GFPC, Ra228, Liqu	uid "As Received"	'										
Radium-228	U	ND	2.04	3.00	pCi/L			AXM6	02/10/17	1239	1635132	3
Rad Radium-226												
Lucas Cell, Ra226,	liquid "As Receiv	ved"										
Radium-226	_	1.17	0.272	1.00	pCi/L			LXP1	02/09/17	0930	1633271	4
The following Prep	Methods were pe	erformed:										
Method	Description	1		Analyst	Date	-	Γime	e Pr	ep Batch			
EPA 200.2	ICP-MS 200.2	2 PREP		SXW1	01/23/17	(	0839	163	33221			
The following Ana	alytical Methods w	vere perforn	ned:									
Method	Description				A	Analyst	Coı	nments	3			
1	SW846 9056A	1			·							
2	EPA 200.8 SC	_NPDES										

### **Notes:**

Barium-133 Tracer

3

Column headers are defined as follows:

Surrogate/Tracer Recovery

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

EPA 904.0/SW846 9320 Modified

GFPC, Ra228, Liquid "As Received"

EPA 903.1 Modified

Test

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: February 16, 2017

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: API-04 Sample ID: 414773013

Matrix: Ground Water
Collect Date: 18-JAN-17 17:40
Receive Date: 20-JAN-17
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in	Liquid "As Re	eceived"										
Fluoride	-	0.259	0.033	0.100	mg/L		1	MAR1	01/25/17	1205	1633301	1
Metals Analysis-ICP-N	1S											
200.8/200.2 NPDES N	Ietals "As Red	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	01/25/17	2038	1633222	2
Rad Gas Flow Proporti	onal Counting	3										
GFPC, Ra228, Liquid	'As Received'	•										
Radium-228	U	ND	2.56	3.00	pCi/L			AXM6	02/10/17	1328	1635132	3
Rad Radium-226												
Lucas Cell, Ra226, liqu	uid "As Recei	ved"										
Radium-226		1.08	0.470	1.00	pCi/L			LXP1	02/09/17	0930	1633271	4
The following Prep Me	ethods were pe	erformed:										
Method	Description	n		Analyst	Date	Г	ime	Pro	ep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		SXW1	01/23/17	0	839	163	33221			

The following Analytical Methods were performed:

 Method
 Description
 Analyst Comments

 1
 SW846 9056A

 2
 EPA 200.8 SC\_NPDES

 3
 EPA 904.0/SW846 9320 Modified

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

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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

**QC Summary** 

Report Date: February 16, 2017

Page 1 of 6

GEL Engineering, LLC 2040 Savage Rd

Charleston, South Carolina Robert Gardner

Workorder: 414773

**Contact:** 

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range Anlst	Date Time
Ion Chromatography Batch 1633027 ———									
QC1203712222 414666010 DUP Fluoride		0.723		0.727	mg/L	0.551		(0%-20%) MAR1	01/24/17 22:36
QC1203714085 414775003 DUP Fluoride		0.288		0.290	mg/L	0.865 ^		(+/-0.100)	01/25/17 01:30
QC1203712221 LCS Fluoride	2.50			2.53	mg/L		101	(90%-110%)	01/24/17 16:21
QC1203712220 MB Fluoride			U	ND	mg/L				01/24/17 15:52
QC1203712223 414666010 PS Fluoride	2.50	0.723		3.20	mg/L		99.1	(90%-110%)	01/24/17 23:05
QC1203714086 414775003 PS Fluoride	2.50	0.288		2.75	mg/L		98.3	(90%-110%)	01/25/17 01:59
Batch 1633301 ———									
QC1203712955 414773001 DUP Fluoride	U	ND	U	ND	mg/L	N/A		MAR1	01/25/17 04:52
QC1203712956 414773020 DUP Fluoride	U	ND	U	ND	mg/L	N/A			01/25/17 16:54
QC1203712954 LCS Fluoride	2.50			2.55	mg/L		102	(90%-110%)	01/25/17 03:54
QC1203712953 MB Fluoride			U	ND	mg/L				01/25/17 03:25

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

# **QC Summary**

		<u>QC bi</u>	amma	<u>.y</u>				
Workorder: 414773								Page 2 of 6
Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range Anls	t Date Time
Ion Chromatography Batch 1633301								
QC1203712957 414773001 PS Fluoride	2.50 U	ND	2.51	mg/L		99.6	(90%-110%) MA	R1 01/25/17 05:21
QC1203712958 414773020 PS Fluoride	2.50 U	ND	2.50	mg/L		99	(90%-110%)	01/25/17 17:23
Metals Analysis - ICPMS Batch 1633220 ———								
QC1203712682 414773001 DUP Lithium	U	ND U	ND	ug/L	N/A		S	SKJ 01/30/17 11:43
QC1203712681 LCS Lithium	50.0		56.3	ug/L		113	(80%-120%)	01/30/17 11:40
QC1203712680 MB Lithium		U	ND	ug/L				01/30/17 11:39
QC1203712683 414773001 MS Lithium	50.0 U	ND	56.8	ug/L		112	(75%-125%)	01/30/17 11:45
QC1203712684 414773001 SDILT Lithium	U	ND U	ND	ug/L	N/A		(0%-10%)	01/30/17 11:47
Batch 1633222 ———								
QC1203712687 414773008 DUP Lithium	J	2.53 J	2.51	ug/L	0.555 ^		(+/-10.0) E	AJ 01/25/17 20:06
QC1203712688 414773009 DUP Lithium	U	ND U	ND	ug/L	N/A			01/25/17 20:17
QC1203712686 LCS Lithium	50.0		48.5	ug/L		96.9	(80%-120%)	01/25/17 20:01

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

# **QC Summary**

Workorder: 414773 Page 3 of 6 Sample Qual **Parmname NOM**  $\mathbf{QC}$ Units RPD% REC% Range Anlst Date Time Metals Analysis - ICPMS 1633222 Batch QC1203712685 MB U ND BAJ 01/25/17 19:58 Lithium ug/L QC1203712689 414773008 MS Lithium 50.0 J 2.53 51.6 98.1 ug/L (75%-125%)01/25/17 20:09 QC1203712690 414773009 MS ND 45.2 ug/L 50.0 U 89.9 01/25/17 20:19 Lithium (75% - 125%)QC1203712691 414773008 SDILT Lithium J 2.53 U ND ug/L N/A (0%-10%)01/25/17 20:11 QC1203712692 414773009 SDILT U Lithium ND U ND ug/L N/A (0%-10%)01/25/17 20:22 Rad Gas Flow 1635132 Batch QC1203717739 414773008 DUP 1.95 1.23 Radium-228 pCi/L 45.1 (0% - 100%) AXM6 02/10/17 12:43 QC1203717740 LCS 19.4 pCi/L Radium-228 21.1 92.1 (75% - 125%)02/10/17 12:43 QC1203717738 MB U 02/10/17 12:43 Radium-228 0.931 pCi/L Batch 1635133 QC1203717742 414773020 DUP U 0.393 3.34 Radium-228 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

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

# **QC Summary**

		<u>QC 50</u>	umman	<u>.y</u>					
Workorder: 414773									Page 4 of 6
Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gas Flow Batch 1635133  QC1203717741 MB Radium-228		U	0.738	pCi/L				AXM6	02/09/17 10:49
<b>Rad Ra-226</b> Batch 1633270									
QC1203712844 414666001 DU Radium-226	UP U	0.198	0.345	pCi/L	54.2		(0% - 100%)	LXP1	02/13/17 11:10
QC1203712846 LCS Radium-226	26.0		24.3	pCi/L		93.7	(75%-125%)		02/13/17 11:40
QC1203712843 MB Radium-226			0.314	pCi/L					02/13/17 11:10
QC1203712845 414666001 Ms Radium-226	130 U	0.198	133	pCi/L		102	(75%-125%)		02/13/17 11:10
Batch 1633271 -									
QC1203712848 414773001 DU Radium-226	UP	0.783	0.966	pCi/L	20.9		(0% - 100%)	LXP1	02/09/17 10:37
QC1203712850 LCS Radium-226	26.0		20.3	pCi/L		78.1	(75%-125%)		02/09/17 10:37
QC1203712847 MB Radium-226		U	-0.0465	pCi/L					02/09/17 10:37
QC1203712849 414773001 M: Radium-226	rs 130	0.783	136	pCi/L		104	(75%-125%)		02/09/17 10:37

### **Notes:**

The Qualifiers in this report are defined as follows:

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

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

# **QC Summary**

Workorder: 414773 Page 5 of 6 Sample Qual Parmname NOM  $\mathbf{OC}$ Units RPD% REC% Range Anlst Date Time Result is greater than value reported В The target analyte was detected in the associated blank. BDResults are either below the MDC or tracer recovery is low Е % difference of sample and SD is >10%. Sample concentration must meet flagging criteria Е 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 Η 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 REMP Result > MDC/CL and < RDL M 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 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.
- 5-day BOD--The 2:1 depletion requirement was not met for this sample d
- 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 e reporting purposes
- Preparation or preservation holding time was exceeded h

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

# **QC Summary**

Page 6 of 6

-Parmname NOM Sample Qual  $\mathbf{QC}$ Units RPD% REC% Range Anlst Date Time

Workorder:

414773

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.

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.

<sup>\*</sup> Indicates that a Quality Control parameter was not within specifications.



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB25317

Wateree NPDES Well MW 1 (NPDES)

Date & Time Sampled: January 17, 2017 17:00

Date & Time Submitted: January 19, 2017 10:30

Collected by: S.SANSBURY Location Code: WAG01TDS

MW 1 Login Record File: 170119002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	4.93	0.50	mg/L	1/25/17 00:56	EB
pH by SM4500HB	4.72	0.00	S.U.	1/23/17 10:47	BF
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	0.83	0.50	mg/L	1/25/17 00:56	EB
Total Dissolved Solid-SM2540C	36	2.0	mg/L	1/23/17 13:53	CDB

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB25318

Wateree Well FGD-01 (NPDES/CCR)

Date & Time Sampled: January 17, 2017 15:20

Date & Time Submitted: January 19, 2017 10:30

Collected by: S.SANSBURY Location Code: WAFGD01TDS

FGD-01 Login Record File: 170119002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	7.76	0.50	mg/L	1/25/17 00:56	EB
pH by SM4500HB	4.66	0.00	S.U.	1/23/17 10:47	BF
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	1/25/17 00:56	EB
Total Dissolved Solid-SM2540C	29	2.0	mg/L	1/23/17 13:53	CDB

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB25319

Wateree Well AP1-01 (NPDES/CCR)

Date & Time Sampled: January 18, 2017 13:55

Date & Time Submitted: January 19, 2017 10:30

Collected by: S.SANSBURY Location Code: WAAP101TDS

AP1-01 Login Record File: 170119002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	167	5.0	mg/L	1/25/17 15:53	EB
pH by SM4500HB	6.75	0.00	S.U.	1/23/17 10:47	BF
Holding Time of 15 minutes has been ex	xceeded.				
Sulfates by IC EPA 300.0	6.62	0.50	mg/L	1/25/17 15:53	EB
Total Dissolved Solid-SM2540C	399	2.0	mg/L	1/23/17 13:53	CDB



Tel: (803)217-9384 Fax: (803) 217-9911

REPORT TO:

Mike Moore

January 31, 2018

Sample ID: AB25321

Wateree Well AP1-02 (NPDES/CCR)

Date & Time Sampled: January 18, 2017 15:45

Date & Time Submitted: January 19, 2017 10:30

Collected by: S.SANSBURY Location Code: WAAP102TDS

AP1-02 Login Record File: 170119002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	100	0.50	mg/L	1/25/17 15:53	EB
pH by SM4500HB	6.56	0.00	S.U.	1/23/17 10:47	BF
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	39	0.50	mg/L	1/25/17 15:53	EB
Total Dissolved Solid-SM2540C	432	2.0	mg/L	1/23/17 13:53	CDB



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB25322

Wateree Well AP1-03 (NPDES/CCR)

Date & Time Sampled: January 18, 2017 16:25
Date & Time Submitted: January 19, 2017 10:30

Collected by: S.SANSBURY Location Code: WAAP103TDS

AP1-03 Login Record File: 170119002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	68.8	0.50	mg/L	1/25/17 00:56	EB
pH by SM4500HB	6.57	0.00	S.U.	1/23/17 10:47	BF
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	31.4	0.50	mg/L	1/25/17 00:56	EB
Total Dissolved Solid-SM2540C	396	2.0	mg/L	1/23/17 13:53	CDB

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB25323

Wateree Well AP1-04 (NPDES/CCR)

Date & Time Sampled: January 18, 2017 17:40

Date & Time Submitted: January 19, 2017 10:30

Collected by: S.SANSBURY Location Code: WAAP104TDS

AP1-04 Login Record File: 170119002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	12.26	0.50	mg/L	1/25/17 00:56	EB
pH by SM4500HB	6.46	0.00	S.U.	1/23/17 10:47	BF
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	1/25/17 00:56	EB
Total Dissolved Solid-SM2540C	471	2.0	mg/L	1/23/17 13:53	CDB

Approved By:		



Mike Moore

# Central Laboratory (P-08) 2102 North Lake Drive Columbia, SC 29212

Tel: (803)217-9384 Fax: (803) 217-9911

REPORT TO:

Sample ID: AB25324

January 31, 2018

Wateree Well AP1-05 (NPDES/CCR)

Date & Time Sampled: January 18, 2017 18:22
Date & Time Submitted: January 19, 2017 10:30

Collected by: S.SANSBURY Location Code: WAAP105TDS

AP1-05 Login Record File: 170119002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	19.78	0.50	mg/L	1/25/17 00:56	EB
pH by SM4500HB	6.15	0.00	S.U.	1/23/17 10:47	BF
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	1/25/17 00:56	EB
Total Dissolved Solid-SM2540C	240	2.0	mg/L	1/23/17 13:53	CDB



Tel: (803)217-9384 Fax: (803) 217-9911

REPORT TO:

Mike Moore

Sample ID: AB25325

January 31, 2018

Wateree Well MW 8 (NPDES/CCR)

Date & Time Sampled: January 18, 2017 17:22

Date & Time Submitted: January 19, 2017 10:30

Collected by: S.SANSBURY Location Code: WAG08TDS

MW 8 Login Record File: 170119002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	17.78	0.50	mg/L	1/25/17 00:56	EB
pH by SM4500HB	6.05	0.00	S.U.	1/23/17 10:47	BF
Holding Time of 15 minutes has been ex	xceeded.				
Sulfates by IC EPA 300.0	95.3	0.50	mg/L	1/25/17 00:56	EB
Total Dissolved Solid-SM2540C	357	2.0	mg/L	1/23/17 13:53	CDB

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB25338

**Wateree NPDES Well MW 1 Total Metals (NPDES)** 

Date & Time Sampled: January 17, 2017 17:00

Date & Time Submitted: January 19, 2017 10:30

Collected by: S.SANSBURY Location Code: WAG01TM

MW 1 Login Record File: 170119003

1.0 1.0 1.0 2.0	Units  ppb  ppb  ppb	Completed Analysis Date & Time  1/23/17 13:28  1/23/17 13:28  1/23/17 08:38	MC MC
1.0	ppb	1/23/17 13:28	MC
10.0	ppb		
		1/23/17 08:38	MC
2.0			
	ppb	1/23/17 08:38	MC
1000	ppb	1/23/17 08:38	MC
1.0	ppb	1/23/17 13:28	MC
100	ppb	1/23/17 08:38	MC
1.0	ppb	1/23/17 13:28	MC
1.0	ppb	1/23/17 13:28	MC
1.0	ppb	1/23/17 13:28	MC
2.0	ppb	1/23/17 08:38	MC
0.2	ppb	1/24/17 15:58	PRC
1.0	ppb	1/23/17 13:28	MC
5.0	ppb	1/23/17 13:28	MC
1.0	ppb	1/23/17 13:28	MC
	1000 1.0 100 1.0 1.0 1.0 2.0 0.2 1.0 5.0	1000 ppb  1.0 ppb  100 ppb  1.0 ppb  1.0 ppb  1.0 ppb  2.0 ppb  0.2 ppb  1.0 ppb  5.0 ppb	1000 ppb 1/23/17 08:38  1.0 ppb 1/23/17 13:28  100 ppb 1/23/17 08:38  1.0 ppb 1/23/17 13:28  1.0 ppb 1/23/17 13:28  1.0 ppb 1/23/17 13:28  2.0 ppb 1/23/17 08:38  0.2 ppb 1/24/17 15:58  1.0 ppb 1/23/17 13:28  5.0 ppb 1/23/17 13:28



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB25339

Wateree Well FGD-01 TM (NPDES/CCR)

Date & Time Sampled: January 17, 2017 15:20

Date & Time Submitted: January 19, 2017 10:30

Collected by: S.SANSBURY Location Code: WAFGD01TM

FGD-01 Login Record File: 170119003

1 05 01			5		
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	1/23/17 13:28	MC
Arsenic by ICP_MS 200.8	1.2	1.0	ppb	1/23/17 13:28	MC
Barium by ICP-OES 200.7	99.5	10.0	ppb	1/23/17 08:38	MC
Beryllium EPA 200.7	Less than	2.0	ppb	1/23/17 08:38	MC
Boron - EPA 200.7	Less than	1000	ppb	1/23/17 08:38	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	1/23/17 13:28	MC
Calcium EPA 200.7	962	100	ppb	1/23/17 08:38	MC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC
Cobalt by ICP_MS 200.8	1.4	1.0	ppb	1/23/17 13:28	MC
Lead by ICP-MS 200.8	1.2	1.0	ppb	1/23/17 13:28	MC
Lithium (CWA) 200.7	2.7	2.0	ppb	1/23/17 08:38	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	1/24/17 15:58	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	1/23/17 13:28	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	1/23/17 13:28	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC

pproved By	y:		
pproved By	y:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB25340

Wateree Well AP1-01 TM (NPDES/CCR)

Date & Time Sampled: January 18, 2017 13:55

Date & Time Submitted: January 19, 2017 10:30

Collected by: S.SANSBURY Location Code: WAAP101TM

AP1-01 Login Record File: 170119003

711 1 0 1			_09		
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	1/23/17 13:28	MC
Arsenic by ICP_MS 200.8	1.4	1.0	ppb	1/23/17 13:28	MC
Barium by ICP-OES 200.7	229	10.0	ppb	1/23/17 08:38	MC
Beryllium EPA 200.7	Less than	2.0	ppb	1/23/17 08:38	MC
Boron - EPA 200.7	1380	1000	ppb	1/23/17 08:38	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	1/23/17 13:28	MC
Calcium EPA 200.7	52700	100	ppb	1/23/17 08:38	MC
Chromium by ICP_MS 200.8	2.9	1.0	ppb	1/23/17 13:28	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	1/23/17 08:38	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	1/24/17 15:58	PRC
Molybdenum - EPA 200.8	5.7	1.0	ppb	1/23/17 13:28	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	1/23/17 13:28	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC

Approved By	<b>v</b> :		



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB25342

Wateree Well AP1-02 TM (NPDES/CCR)

Date & Time Sampled: January 18, 2017 15:45
Date & Time Submitted: January 19, 2017 10:30

Collected by: S.SANSBURY Location Code: WAAP102TM

AP1-02 Login Record File: 170119003

/ u · V=			_09		
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	1/23/17 13:28	MC
Arsenic by ICP_MS 200.8	166	1.0	ppb	1/23/17 13:28	MC
Barium by ICP-OES 200.7	170	10.0	ppb	1/23/17 08:38	MC
Beryllium EPA 200.7	Less than	2.0	ppb	1/23/17 08:38	MC
Boron - EPA 200.7	1000	1000	ppb	1/23/17 08:38	МС
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	1/23/17 13:28	MC
Calcium EPA 200.7	64700	100	ppb	1/23/17 08:38	МС
Chromium by ICP_MS 200.8	1.1	1.0	ppb	1/23/17 13:28	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC
Lithium (CWA) 200.7	25.9	2.0	ppb	1/23/17 08:38	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	1/24/17 15:58	PRC
Molybdenum - EPA 200.8	30.0	1.0	ppb	1/23/17 13:28	МС
Selenium by ICP-MS 200.8	Less than	5.0	ppb	1/23/17 13:28	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC

Approved By:	



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB25343

Wateree Well AP1-03 TM (NPDES/CCR)

Date & Time Sampled: January 18, 2017 16:25
Date & Time Submitted: January 19, 2017 10:30

Collected by: S.SANSBURY Location Code: WAAP103TM

AP1-03 Login Record File: 170119003

711 1 00							
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	1/23/17 13:28	MC		
Arsenic by ICP_MS 200.8	64.4	1.0	ppb	1/23/17 13:28	MC		
Barium by ICP-OES 200.7	226	10.0	ppb	1/23/17 08:38	MC		
Beryllium EPA 200.7	Less than	2.0	ppb	1/23/17 08:38	MC		
Boron - EPA 200.7	1630	1000	ppb	1/23/17 08:38	MC		
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	1/23/17 13:28	MC		
Calcium EPA 200.7	113000	100	ppb	1/23/17 08:38	MC		
Chromium by ICP_MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC		
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC		
Lead by ICP-MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC		
Lithium (CWA) 200.7	Less than	2.0	ppb	1/23/17 08:38	MC		
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	1/24/17 15:58	PRC		
Molybdenum - EPA 200.8	Less than	1.0	ppb	1/23/17 13:28	MC		
Selenium by ICP-MS 200.8	Less than	5.0	ppb	1/23/17 13:28	MC		
Thallium by ICP-MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC		

Approved By	<b>/</b> :		



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB25344

Wateree Well AP1-04 TM (NPDES/CCR)

Date & Time Sampled: January 18, 2017 17:40

Date & Time Submitted: January 19, 2017 10:30

Collected by: S.SANSBURY Location Code: WAAP104TM

AP1-04 Login Record File: 170119003

711 1 0 1							
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	1/23/17 13:28	MC		
Arsenic by ICP_MS 200.8	2.2	1.0	ppb	1/23/17 13:28	MC		
Barium by ICP-OES 200.7	218	10.0	ppb	1/23/17 08:38	MC		
Beryllium EPA 200.7	Less than	2.0	ppb	1/23/17 08:38	MC		
Boron - EPA 200.7	Less than	1000	ppb	1/23/17 08:38	MC		
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	1/23/17 13:28	MC		
Calcium EPA 200.7	12500	100	ppb	1/23/17 08:38	MC		
Chromium by ICP_MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC		
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC		
Lead by ICP-MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC		
Lithium (CWA) 200.7	Less than	2.0	ppb	1/23/17 08:38	MC		
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	1/24/17 15:58	PRC		
Molybdenum - EPA 200.8	Less than	1.0	ppb	1/23/17 13:28	MC		
Selenium by ICP-MS 200.8	Less than	5.0	ppb	1/23/17 13:28	MC		
Thallium by ICP-MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB25345

Wateree Well AP1-05 TM (NPDES/CCR)

Date & Time Sampled: January 18, 2017 18:22
Date & Time Submitted: January 19, 2017 10:30

Collected by: S.SANSBURY Location Code: WAAP105TM

AP1-05 Login Record File: 170119003

711 1 00							
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	1/23/17 13:28	MC		
Arsenic by ICP_MS 200.8	2.2	1.0	ppb	1/23/17 13:28	MC		
Barium by ICP-OES 200.7	218	10.0	ppb	1/23/17 08:38	MC		
Beryllium EPA 200.7	Less than	2.0	ppb	1/23/17 08:38	MC		
Boron - EPA 200.7	Less than	1000	ppb	1/23/17 08:38	MC		
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	1/23/17 13:28	MC		
Calcium EPA 200.7	12700	100	ppb	1/23/17 08:38	MC		
Chromium by ICP_MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC		
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC		
Lead by ICP-MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC		
Lithium (CWA) 200.7	Less than	2.0	ppb	1/23/17 08:38	MC		
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	1/24/17 15:58	PRC		
Molybdenum - EPA 200.8	Less than	1.0	ppb	1/23/17 13:28	MC		
Selenium by ICP-MS 200.8	Less than	5.0	ppb	1/23/17 13:28	MC		
Thallium by ICP-MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC		

Approved By:	_
--------------	---



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB25346

Wateree Well MW 8 TM (NPDES/CCR)

Date & Time Sampled: January 18, 2017 17:22

Date & Time Submitted: January 19, 2017 10:30

Collected by: S.SANSBURY Location Code: WAG08TM

MW 8 Login Record File: 170119003

				•	
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	1/23/17 13:28	MC
Arsenic by ICP_MS 200.8	7.6	2.0	ppb	1/23/17 15:21	MC
Barium by ICP-OES 200.7	167	10.0	ppb	1/23/17 08:38	MC
Beryllium EPA 200.7	3.8	2.0	ppb	1/23/17 08:38	MC
Boron - EPA 200.7	Less than	1000	ppb	1/23/17 08:38	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	1/23/17 13:28	MC
Calcium EPA 200.7	21300	100	ppb	1/23/17 08:38	MC
Chromium by ICP_MS 200.8	Less than	2.0	ppb	1/23/17 15:21	MC
Cobalt by ICP_MS 200.8	12.9	2.0	ppb	1/23/17 15:21	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC
Lithium (CWA) 200.7	10.5	2.0	ppb	1/23/17 08:38	МС
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	1/24/17 15:58	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	1/23/17 13:28	MC
Selenium by ICP-MS 200.8	19.3	10.0	ppb	1/23/17 15:21	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	1/23/17 13:28	MC

Approved By:	_
--------------	---

# SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL GROUND-WATER MONITORING REPORT

Facility:	Wateree Station		Permi	t No.:	County: Richland
Date Sampled:	03/20/2017		_	Time Sampled:	12:00:00PM
	year-month-day (N	umerical)			
			T	STATION NUMBERS	
PARAMETI	E R NUMBER	MW-AP-01A	MW-FGD-01		
NAME	Lab. Certificate No.	32006	32006		
Field pH S.U.		4.450	4.350		
Field Sp. Conduct	tivity micromhos/cm	40.000	47.000		
Field Turbidity N	TU	9.50	2.60		
ORP mV		174.200	288.700		
Oxygen, dissolved	d mg/L	4.600	3.070		
Γemp (Celcius) d	egrees C	18.680	18.110		
Water level elevat	tion ft	114.51	115.85		

Date:

Authorized Release By:

# SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL GROUND-WATER MONITORING REPORT

Facility: Wateree S	tation		Perr	nit No.:		County: Rich	nland
Date Sampled: 03/21/2017	7				Time Sampled:	12:00:00PM	
ye	ear-month-day (N	umerical)					
PARAMETER	NUMBER	MW-AP-01	MW-AP-02	MW-AP-03	MW-AP-04	MW-AP-05	MW-AP-08
NAME Lab.	. Certificate No.	32006	32006	32006	32006	32006	32006
Field pH S.U.		6.550	6.330	6.730	6.650	4.330	5.890
Field Sp. Conductivity micro	mhos/cm	719.000	639.000	577.000	687.000	73.000	475.000
Field Turbidity NTU		2.90	5.80	8.10	0.90	4.80	6.20
ORP mV		728.700	-88.000	-105.800	-102.100	277.300	-50.500
Oxygen, dissolved mg/L		0.640	0.480	0.310	0.700	1.030	1.670
Temp (Celcius) degrees C		21.060	22.290	22.710	22.110	19.130	18.230
Water level elevation ft		87.96	84.91	85.56	85.28	82.85	83.01

Date:

Authorized Release By:

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

# Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC Client SDG: 419050 GEL Work Order: 419050

### 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.

	Jack N	Crosh			
Reviewed by	,				

A. . .

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: April 16, 2017

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: FGD-01 Sample ID: 419050001 Matrix: Ground Water

Matrix: Ground Water
Collect Date: 20-MAR-17 13:35
Receive Date: 22-MAR-17
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in	Liquid "As Re	eceived"										
Fluoride	U	ND	0.033	0.100	mg/L		1	MXL2	03/23/17	0825	1649928	1
Metals Analysis-ICP-N	AS											
200.8/200.2 NPDES N	Metals "As Red	ceived"										
Lithium	J	2.40	2.00	10.0	ug/L	1.00	1	BAJ	03/28/17	1539	1649909	2
Rad Gas Flow Proporti	ional Counting	3										
GFPC, Ra228, Liquid	"As Received"	1										
Radium-228		1.32	0.835	3.00	pCi/L			AXM6	04/12/17	1041	1651322	3
Rad Radium-226												
Lucas Cell, Ra226, liqu	uid "As Recei	ved"										
Radium-226		1.42	0.224	1.00	pCi/L			MXH8	04/14/17	0955	1651334	4
The following Prep Me	ethods were pe	erformed:										
Method	Description	n		Analyst	Date	Т	ime	Pre	p Batch			
EPA 200.2	ICP-MS 200.	2 PREP		CXW4	03/22/17	1	839	164	9906			

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

EPA 903.1 Modified

Surrogate/Tracer Recovery Test Result Nominal Recovery% Acceptable Limits

Barium-133 Tracer GFPC, Ra228, Liquid "As Received"

84.7 (15%-125%)

### **Notes:**

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: April 16, 2017

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: MW-1A
Sample ID: 419050002
Matrix: Ground Water
Collect Date: 20-MAR-17 14:35

Receive Date: 20-MAR-17 14
Receive Date: 22-MAR-17
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst Date	Time	e Batch	Method
Ion Chromatograp	ohy										
EPA300.0 Fluorio	de in Liquid "As Re	eceived"									
Fluoride	U	ND	0.033	0.100	mg/L		1	MXL2 03/23/17	0852	1649928	1
Metals Analysis-I	CP-MS										
200.8/200.2 NPD	DES Metals "As Red	ceived"									
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ 03/28/17	1551	1649909	2
Rad Gas Flow Pro	oportional Counting	g									
GFPC, Ra228, Li	quid "As Received'	"									
Radium-228	-	0.979	0.782	3.00	pCi/L			AXM6 04/12/17	1041	1651322	3
Rad Radium-226											
Lucas Cell, Ra22	6, liquid "As Recei	ved"									
Radium-226	•	0.664	0.319	1.00	pCi/L			MXH8 04/14/17	0955	1651334	4
The following Pre	ep Methods were pe	erformed:									
Method	Description	n		Analyst	Date	7	Гіт	e Prep Batch	1		
EPA 200.2	ICP-MS 200.	2 PREP		CXW4	03/22/17	1	839	1649906			

The following Analytical Methods were performed:

Method Description Analyst Comments

1 EPA 300.0

EPA 200.8 SC\_NPDES

3 EPA 904.0/SW846 9320 Modified

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

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: April 16, 2017

Company: Address:

GEL Engineering, LLC 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: FB-01

Sample ID: 419050003 Matrix: Ground Water

Collect Date: 21-MAR-17 07:40 Receive Date: 22-MAR-17 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst Date	Time	e Batch	Method
Ion Chromatograp	ohy										
EPA300.0 Fluorid	le in Liquid "As Re	eceived"									
Fluoride	U	ND	0.033	0.100	mg/L		1	MXL2 03/23/17	0919	1649928	1
Metals Analysis-I	CP-MS										
200.8/200.2 NPD	ES Metals "As Red	ceived"									
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ 03/28/17	1554	1649909	2
Rad Gas Flow Pro	portional Counting	9									
GFPC, Ra228, Lic	quid "As Received"	'									
Radium-228	U	ND	0.575	3.00	pCi/L			AXM6 04/12/17	1041	1651322	3
Rad Radium-226											
Lucas Cell, Ra226	, liquid "As Receiv	ved"									
Radium-226	U	ND	0.317	1.00	pCi/L			MXH8 04/14/17	0955	1651334	4
The following Pre	p Methods were pe	erformed:									
Method	Description	1		Analyst	Date	Т	Γime	e Prep Batcl	ı		
EPA 200.2	ICP-MS 200.2	2 PREP		CXW4	03/22/17	1	839	1649906			<del></del>
FD1 C 11	1 13 6 .1 .1	c									

The following Analytical Methods were performed:

Method Description **Analyst Comments** EPA 300.0 2

EPA 200.8 SC\_NPDES 3

EPA 904.0/SW846 9320 Modified

EPA 903.1 Modified

Surrogate/Tracer Recovery Test Result Nominal Recovery% Acceptable Limits Barium-133 Tracer 97 (15%-125%) GFPC, Ra228, Liquid "As Received"

### **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

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

**Certificate of Analysis** 

Project:

Units

Result

Nominal

Recovery%

93.9

Acceptable Limits

(15%-125%)

Client ID:

PF

SCEG01716c

GEEL003

Report Date: April 16, 2017

DF Analyst Date Time Batch Method

Company:

GEL Engineering, LLC

Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: MW-08

Sample ID:

419050004

22-MAR-17

Matrix:

Ground Water

Collect Date:

21-MAR-17 08:25

Result

Receive Date: Collector:

Parameter

Client

Qualifier

	<b>C</b>							
Ion Chromatograpl	hy							
EPA300.0 Fluoride	e in Liquid "As Received"							
Fluoride	0.311	0.033	0.100	mg/L	1	MXL2 03/23/17	2326 1649958	1
Metals Analysis-IC	CP-MS							
200.8/200.2 NPDI	ES Metals "As Received"							
Lithium	11.8	2.00	10.0	ug/L	1.00 1	BAJ 03/28/17	1603 1649909	2
Rad Gas Flow Prop	portional Counting							
GFPC, Ra228, Liq	uid "As Received"							
Radium-228	1.24	0.614	3.00	pCi/L		AXM6 04/12/17	1041 1651322	3
Rad Radium-226								
Lucas Cell, Ra226	, liquid "As Received"							
Radium-226	0.607	0.291	1.00	pCi/L		MXH8 04/14/17	0955 1651334	4
The following Prep	Methods were performed:							
Method	Description		Analyst	Date	Time	e Prep Batch		
EPA 200.2	ICP-MS 200.2 PREP		CXW4	03/22/17	1839	1649906		
The following Ana	alytical Methods were performed:							
Method	Description			A	Analyst Cor	nments		
1	EPA 300.0							
2	EPA 200.8 SC_NPDES							

DL

RL

### **Notes:**

Barium-133 Tracer

3

Column headers are defined as follows:

Surrogate/Tracer Recovery

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

EPA 904.0/SW846 9320 Modified

GFPC, Ra228, Liquid "As Received"

EPA 903.1 Modified

Test

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

**Certificate of Analysis** 

Project:

mg/L

pCi/L

Client ID:

Report Date: April 16, 2017

SCEG01716c

MXL2 03/24/17 0054 1649958

MXH8 04/14/17 0955 1651334

1

GEEL003

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

0.0729

ND

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: AP1-99
Sample ID: 419050005
Matrix: Ground Water
Collect Date: 21-MAR-17 09:15

Receive Date: 22-MAR-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"

0.100

1.00

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 03/28/17 1614 1649909

Rad Gas Flow Proportional Counting

0.033

GFPC, Ra228, Liquid "As Received"

Radium-228 0.730 0.614 3.00 pCi/L AXM6 04/12/17 1041 1651322

Rad Radium-226

Lucas Cell, Ra226, liquid "As Received"
Radium-226
U

The following Prep Methods were performed:

Method Description Analyst Date Time Prep Batch

0.351

MethodDescriptionAnalystDateTimePrep BatchEPA 200.2ICP-MS 200.2 PREPCXW403/22/1718391649906

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

EPA 903.1 Modified

Surrogate/Tracer Recovery Test Result Nominal Recovery% Acceptable Limits

Barium-133 Tracer GFPC, Ra228, Liquid "As Received"

88.6 (15%-125%)

### **Notes:**

Fluoride

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

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

**Certificate of Analysis** 

Project:

Units

Result

Nominal

Recovery%

92.9

Acceptable Limits

(15%-125%)

Client ID:

PF

SCEG01716c

GEEL003

Report Date: April 16, 2017

DF Analyst Date Time Batch Method

Company: Address:

GEL Engineering, LLC

2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: AP1-05

Sample ID:

419050006

22-MAR-17

Matrix:

Parameter

Ground Water

Collect Date:

21-MAR-17 09:25

Result

Receive Date: Collector:

Client

Qualifier

	•					•		
Ion Chromatograp	ohy							
EPA300.0 Fluorid	le in Liquid "As Received"							
Fluoride	Ј 0.0659	0.033	0.100	mg/L	1	MXL2 03/24/17	0124 1649958	1
Metals Analysis-I	CP-MS							
200.8/200.2 NPD	ES Metals "As Received"							
Lithium	U ND	2.00	10.0	ug/L	1.00 1	BAJ 03/28/17	1617 1649909	2
Rad Gas Flow Pro	pportional Counting							
GFPC, Ra228, Lic	quid "As Received"							
Radium-228	0.599	0.504	3.00	pCi/L		AXM6 04/12/17	1041 1651322	3
Rad Radium-226								
Lucas Cell, Ra226	5, liquid "As Received"							
Radium-226	0.519	0.311	1.00	pCi/L		MXH8 04/14/17	1025 1651334	4
The following Pre	p Methods were performed:							
Method	Description		Analyst	Date	Time	Prep Batch		_
EPA 200.2	ICP-MS 200.2 PREP		CXW4	03/22/17	1839	1649906		
The following Ar	nalytical Methods were performed:							
Method	Description			A	nalyst Con	nments		
1	EPA 300.0							
2	EPA 200.8 SC_NPDES							
3	EPA 904.0/SW846 9320 Modified							
4	EPA 903.1 Modified							

DL

RL

### **Notes:**

Barium-133 Tracer

Column headers are defined as follows:

Surrogate/Tracer Recovery

DF: Dilution Factor Lc/LC: Critical Level DL: Detection Limit PF: Prep Factor MDA: Minimum Detectable Activity **RL**: Reporting Limit

Test

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

GFPC, Ra228, Liquid "As Received"

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: April 16, 2017

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: AP1-01 Sample ID: 419050007 Matrix: Ground Water

Collect Date: 21-MAR-17 12:05
Receive Date: 22-MAR-17
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst Date	Tim	e Batch	Method
Ion Chromatograp	ohy										
EPA300.0 Fluorid	le in Liquid "As Re	eceived"									
Fluoride	•	0.311	0.033	0.100	mg/L		1	MXL2 03/24/1	7 0153	1649958	1
Metals Analysis-I	CP-MS										
200.8/200.2 NPD	ES Metals "As Red	ceived"									
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ 03/28/1	7 1620	1649909	2
Rad Gas Flow Pro	portional Counting	g									
GFPC, Ra228, Lic	quid "As Received"	"									
Radium-228	•	0.628	0.528	3.00	pCi/L			AXM6 04/12/1	7 104	1651322	3
Rad Radium-226											
Lucas Cell, Ra226	, liquid "As Receiv	ved"									
Radium-226	•	0.447	0.171	1.00	pCi/L			MXH8 04/14/1	7 1025	5 1651334	4
The following Pre	p Methods were pe	erformed:									
Method	Description	n		Analyst	Date	ı	Tim	e Prep Bate	h		
EPA 200.2	ICP-MS 200.2	2 PREP		CXW4	03/22/17		1839	1649906			
FD1 C 11 : A	1 13 6 .1 1	c	,								

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"

86.4 (15%-125%)

**Notes:** 

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: April 16, 2017

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: AP1-04
Sample ID: 419050010
Matrix: Ground Water
Collect Date: 21-MAR-17 13:04

Receive Date: 22-MAR-17 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analys	st Date	Time	Batch	Method
Ion Chromatograp	ohy											
EPA300.0 Fluorio	de in Liquid "As Re	eceived"										
Fluoride	•	0.187	0.033	0.100	mg/L		1	MXL2	03/24/17	0420	1649958	1
Metals Analysis-I	CP-MS											
200.8/200.2 NPD	DES Metals "As Red	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	03/28/17	1635	1649909	2
Rad Gas Flow Pro	oportional Counting	g										
GFPC, Ra228, Li	quid "As Received'	"										
Radium-228	-	1.15	0.515	3.00	pCi/L			AXM6	04/12/17	1044	1651322	3
Rad Radium-226												
Lucas Cell, Ra22	6, liquid "As Recei	ved"										
Radium-226	•	1.33	0.344	1.00	pCi/L			MXH8	04/14/17	1025	1651334	4
The following Pro	ep Methods were pe	erformed:										
Method	Description	n		Analyst	Date	7	Γime	Pre	ep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		CXW4	03/22/17	1	839	164	9906			

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"

89.7 (15%-125%)

### **Notes:**

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

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

**Certificate of Analysis** 

Report Date: April 16, 2017

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: AP1-02
Sample ID: 419050011
Matrix: Ground Water
Collect Date: 21-MAR-17 13:45

Receive Date: 22-MAR-17 Collector: Client

ample ID: AP1-02 Project: SCEG01716c
ID: 419050011 Client ID: GEEL003

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatogra	phy											
EPA300.0 Fluori	de in Liquid "As Re	eceived"										
Fluoride	-	0.372	0.033	0.100	mg/L		1	MXL2	03/24/17	0449	1649958	1
Metals Analysis-	ICP-MS											
200.8/200.2 NPI	DES Metals "As Re	ceived"										
Lithium		37.9	2.00	10.0	ug/L	1.00	1	BAJ	03/28/17	1638	1649909	2
Rad Gas Flow Pr	oportional Counting	g										
GFPC, Ra228, Li	iquid "As Received	"										
Radium-228	•	0.818	0.413	3.00	pCi/L			AXM6	04/12/17	1044	1651322	3
Rad Radium-226												
Lucas Cell, Ra22	6, liquid "As Recei	ved"										
Radium-226	_	0.556	0.190	1.00	pCi/L			MXH8	04/14/17	1025	1651334	4
The following Pr	ep Methods were p	erformed:										
Method	Descriptio	n		Analyst	Date	7	Гіте	e Pr	ep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		CXW4	03/22/17	1	1839	16	49906			

The following Analytical Methods were performed:

Method Description Analyst Comments

EPA 300.0

2 EPA 200.8 SC\_NPDES

3 EPA 904.0/SW846 9320 Modified

EPA 903.1 Modified

Surrogate/Tracer Recovery Test Result Nominal Recovery% Acceptable Limits

Barium-133 Tracer GFPC, Ra228, Liquid "As Received"

96.4 (15%-125%)

### **Notes:**

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

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

**Certificate of Analysis** 

Project:

Result

Nominal

Recovery%

96.5

Acceptable Limits

(15%-125%)

Client ID:

SCEG01716c

GEEL003

Report Date: April 16, 2017

Company:

GEL Engineering, LLC

Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: AP1-03

Sample ID:

419050013

Matrix:

Ground Water

Collect Date:

21-MAR-17 14:47

Receive Date: Collector:

22-MAR-17 Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograph	hy											
EPA300.0 Fluoride	e in Liquid "As Re	eceived"										
Fluoride	_	0.673	0.033	0.100	mg/L		1	MXL2	03/24/17	0548	1649958	1
Metals Analysis-IC	CP-MS											
200.8/200.2 NPDI	ES Metals "As Red	ceived"										
Lithium		98.1	2.00	10.0	ug/L	1.00	1	BAJ	03/28/17	1643	1649909	2
Rad Gas Flow Prop	portional Counting	3										
GFPC, Ra228, Liq	uid "As Received"	"										
Radium-228		0.614	0.462	3.00	pCi/L			AXM6	04/12/17	1044	1651322	3
Rad Radium-226												
Lucas Cell, Ra226	, liquid "As Receiv	ved"										
Radium-226		0.997	0.343	1.00	pCi/L			MXH8	04/14/17	1100	1651334	4
The following Prep	p Methods were pe	erformed:										
Method	Description	n		Analyst	Date	-	Гітє	Pre	ep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		CXW4	03/22/17		1839	164	19906			
The following An	alytical Methods v	were performe	d:									
Method	Description	l			A	Analyst	Cor	nments	3			
1	EPA 300.0					-						
2	EPA 200.8 SC	C_NPDES										

### **Notes:**

Barium-133 Tracer

3

Column headers are defined as follows:

Surrogate/Tracer Recovery

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

EPA 904.0/SW846 9320 Modified

GFPC, Ra228, Liquid "As Received"

EPA 903.1 Modified

Test

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

**QC Summary** 

Report Date: April 16, 2017

Page 1 of 4

GEL Engineering, LLC 2040 Savage Rd

Charleston, South Carolina

**Contact:** Robert Gardner

Workorder: 419050

Parmname	NOM	Sample Qual	QC	Units	RPD% REC	C% Range Anlst	Date Time
Ion Chromatography Batch 1649928 ———							
QC1203753083 419043001 DUP Fluoride	U	ND U	ND	mg/L	N/A	MXL2	03/23/17 03:56
QC1203753082 LCS Fluoride	2.50		2.40	mg/L	9	5 (90%-110%)	03/23/17 03:02
QC1203753081 MB Fluoride		U	ND	mg/L			03/23/17 02:35
QC1203753084 419043001 PS Fluoride	2.50 U	ND	2.51	mg/L	99.	3 (90%-110%)	03/23/17 04:23
Batch 1649958 ———							
QC1203753188 419050004 DUP Fluoride		0.311	0.310	mg/L	0.483 ^	(+/-0.100) MXL2	03/23/17 23:55
QC1203753189 419050014 DUP Fluoride	U	ND U	ND	mg/L	N/A		03/24/17 06:47
QC1203753187 LCS Fluoride	2.50		2.51	mg/L	10	1 (90%-110%)	03/23/17 22:57
QC1203753186 MB Fluoride		U	ND	mg/L			03/23/17 22:27
QC1203753190 419050004 PS Fluoride	2.50	0.311	2.71	mg/L	96.	1 (90%-110%)	03/24/17 00:25
QC1203753191 419050014 PS Fluoride	2.50 U	ND	2.55	mg/L	10	1 (90%-110%)	03/24/17 07:17

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

## **QC Summary**

419050 Workorder: Page 2 of 4 Sample Qual **Parmname NOM**  $\mathbf{QC}$ Units RPD% REC% Range Anlst Date Time Metals Analysis - ICPMS 1649909 Batch QC1203753023 419050001 DUP 2.40 Lithium J 2.41 ug/L 0.583 ^ (+/-10.0)BAJ 03/28/17 15:42 QC1203753024 419050004 DUP Lithium 11.8 0.767 ^ (+/-10.0)03/28/17 16:06 11.7 ug/L QC1203753022 LCS 51.9 ug/L 50.0 104 (80%-120%) 03/28/17 15:37 Lithium QC1203753021 ND Lithium U ug/L 03/28/17 15:34 QC1203753025 419050001 MS Lithium 50.0 2.40 56.9 ug/L 109 (75% - 125%)03/28/17 15:45 QC1203753026 419050004 MS Lithium 50.0 11.8 62.0 ug/L 100 (75% - 125%)03/28/17 16:09 QC1203753027 419050001 SDILT Lithium 2.40 U ND (0%-10%)03/28/17 15:48 ug/L N/A QC1203753028 419050004 SDILT Lithium 11.8 J 2.30 ug/L (0%-10%)03/28/17 16:11 2.37 **Rad Gas Flow** 1651322 Batch QC1203756438 419050008 DUP Radium-228 U 0.183 U 0.533 pCi/L N/A N/AAXM6 04/12/17 11:57 QC1203756439 LCS Radium-228 6.89 7.20 pCi/L 104 (75%-125%) 04/12/17 10:46 QC1203756437 Radium-228 U 0.0782 04/12/17 10:45 pCi/L

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

## **QC Summary**

717030								Page 3 of 4
Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range Anlst	Date Time
<b>Rad Ra-226</b> Batch 1651334								
QC1203756467 419050012 DUP Radium-226		1.15	0.937	pCi/L	20.4		(0% - 100%) MXH8	04/14/17 11:00
QC1203756469 LCS Radium-226	26.0		21.7	pCi/L		83.4	(75%-125%)	04/14/17 11:00
QC1203756466 MB Radium-226		U	0.00	pCi/L				04/14/17 11:00
QC1203756468 419050012 MS Radium-226	130	1.15	129	pCi/L		98.3	(75%-125%)	04/14/17 11:00

### **Notes:**

Workorder:

419050

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

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

## **QC Summary**

Parmname NOM Sample Qual QC Units RPD% REC% Range Anlst Date Time

- 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

419050

Workorder:

- 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.



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB26297

Wateree Well FGD-01 (NPDES/CCR)

Date & Time Sampled: March 20, 2017 13:35

Date & Time Submitted: March 22, 2017 13:30

Collected by: A.HILL Location Code: WAFGD01TDS

FGD-01 Login Record File: 170322002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist		
Chlorides by IC EPA 300.0	5.83	0.50	mg/L	3/24/17 06:18	EB		
pH by SM4500HB(2011)	5.26	0.00	S.U.	3/23/17 14:53	BF		
Holding Time of 15 minutes has been exceeded.							
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	3/24/17 06:18	EB		
Total Dissolved Solid-SM2540C	31	2.0	mg/L	3/24/17 15:00	BF		

Approved By:		
AUDIOVED DV.		



Mike Moore C221

## Central Laboratory (P-08) 2102 North Lake Drive Columbia, SC 29212

Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

REPORT TO:

Sample ID: AB26298

Wateree NPDES Well MW 1 (NPDES)

Date & Time Sampled: March 20, 2017 14:35

Date & Time Submitted: March 22, 2017 13:30

Collected by: A.HILL Location Code: WAG01TDS

MW 1 Login Record File: 170322002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist			
Chlorides by IC EPA 300.0	4.77	0.50	mg/L	3/24/17 06:18	EB			
pH by SM4500HB(2011)	5.50	0.00	S.U.	3/23/17 14:53	BF			
Holding Time of 15 minutes has been exceeded.								
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	3/24/17 06:18	EB			
Total Dissolved Solid-SM2540C	26	2.0	mg/L	3/24/17 15:00	BF			

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB26300

Wateree Well MW 8 (NPDES/CCR)

Date & Time Sampled: March 21, 2017 08:25

Date & Time Submitted: March 22, 2017 13:30

Collected by: A.HILL Location Code: WAG08TDS

MW 8 Login Record File: 170322002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	17.12	0.50	mg/L	3/24/17 06:18	EB
pH by SM4500HB(2011)	5.50	0.00	S.U.	3/23/17 14:53	BF
Holding Time of 15 minutes has been ex	xceeded.				
Sulfates by IC EPA 300.0	106	2.5	mg/L	3/24/17 06:18	EB
Total Dissolved Solid-SM2540C	362	2.0	mg/L	3/24/17 15:00	BF



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

REPORT TO:

Mike Moore C221

Sample ID: AB26302

Wateree Well AP1-05 (NPDES/CCR)

Date & Time Sampled: March 21, 2017 09:25

Date & Time Submitted: March 22, 2017 13:30

Collected by: A.HILL Location Code: WAAP105TDS

AP1-05 Login Record File: 170322002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	18.2	0.50	mg/L	3/24/17 06:18	EB
pH by SM4500HB(2011)	5.40	0.00	S.U.	3/23/17 14:53	BF
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	3/24/17 06:18	EB
Total Dissolved Solid-SM2540C	258	2.0	mg/L	3/24/17 15:00	BF

Approved By:		
AUDIOVED DV.		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB26304

Wateree Well AP1-01 (NPDES/CCR)

Date & Time Sampled: March 21, 2017 12:05

Date & Time Submitted: March 22, 2017 13:30

Collected by: A.HILL Location Code: WAAP101TDS

AP1-01 Login Record File: 170322002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	164	2.5	mg/L	3/24/17 06:18	EB
pH by SM4500HB(2011)	5.64	0.00	S.U.	3/23/17 14:53	BF
Holding Time of 15 minutes has been ex	xceeded.				
Sulfates by IC EPA 300.0	5.52	2.5	mg/L	3/24/17 06:18	EB
Total Dissolved Solid-SM2540C	441	2.0	mg/L	3/24/17 15:00	BF



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB26307

Wateree Well AP1-04 (NPDES/CCR)

Date & Time Sampled: March 21, 2017 13:04
Date & Time Submitted: March 22, 2017 13:30

Collected by: A.HILL Location Code: WAAP104TDS

AP1-04 Login Record File: 170322002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	9.16	0.50	mg/L	3/24/17 06:18	EB
pH by SM4500HB(2011)	5.54	0.00	S.U.	3/23/17 14:53	BF
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	3/24/17 06:18	EB
Total Dissolved Solid-SM2540C	362	2.0	mg/L	3/24/17 15:00	BF



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB26308

Wateree Well AP1-02 (NPDES/CCR)

Date & Time Sampled: March 21, 2017 13:45
Date & Time Submitted: March 22, 2017 13:30

Collected by: A.HILL Location Code: WAAP102TDS

AP1-02 Login Record File: 170322002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	125.2	2.5	mg/L	3/24/17 06:18	EB
pH by SM4500HB(2011)	5.50	0.00	S.U.	3/23/17 14:53	BF
Holding Time of 15 minutes has been ex	xceeded.				
Sulfates by IC EPA 300.0	28.9	2.5	mg/L	3/24/17 06:18	EB
Total Dissolved Solid-SM2540C	420	2.0	mg/L	3/24/17 15:00	BF

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

REPORT TO:

Mike Moore C221

Sample ID: AB26310

Wateree Well AP1-03 (NPDES/CCR)

Date & Time Sampled: March 21, 2017 14:47

Date & Time Submitted: March 22, 2017 13:30

Collected by: A.HILL Location Code: WAAP103TDS

AP1-03 Login Record File: 170322002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	29.1	2.5	mg/L	3/24/17 06:18	EB
pH by SM4500HB(2011)	5.62	0.00	S.U.	3/23/17 14:53	BF
Holding Time of 15 minutes has been ex	xceeded.				
Sulfates by IC EPA 300.0	72.9	2.5	mg/L	3/24/17 06:18	EB
Total Dissolved Solid-SM2540C	392	2.0	mg/L	3/24/17 15:00	BF



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB26324

Wateree Well FGD-01 TM (NPDES/CCR)

Date & Time Sampled: March 20, 2017 13:35

Date & Time Submitted: March 22, 2017 13:30

Collected by: A.HILL Location Code: WAFGD01TM

FGD-01 Login Record File: 170323001

1 05 01			5	110020001	
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	3/28/17 14:19	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC
Barium by ICP-OES 200.7	82.3	10.0	ppb	3/24/17 12:00	MC
Beryllium EPA 200.7	Less than	2.0	ppb	3/24/17 12:00	MC
Boron - EPA 200.7	Less than	1000	ppb	3/24/17 12:00	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	3/28/17 14:19	MC
Calcium EPA 200.7	832	100	ppb	3/24/17 12:00	MC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC
Cobalt by ICP_MS 200.8	1.2	1.0	ppb	3/28/17 14:19	MC
Lead by ICP-MS 200.8	1.1	1.0	ppb	3/28/17 14:19	MC
Lithium (CWA) 200.7	2.2	2.0	ppb	3/24/17 12:00	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	3/24/17 14:55	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	3/28/17 14:19	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	3/28/17 14:19	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB26325

Wateree NPDES Well MW 1 Total Metals (NPDES)

Date & Time Sampled: March 20, 2017 14:35

Date & Time Submitted: March 22, 2017 13:30

Collected by: A.HILL Location Code: WAG01TM

MW 1 Login Record File: 170323001

			5	110020001	
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	3/28/17 14:19	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC
Barium by ICP-OES 200.7	56.0	10.0	ppb	3/24/17 12:00	MC
Beryllium EPA 200.7	Less than	2.0	ppb	3/24/17 12:00	MC
Boron - EPA 200.7	Less than	1000	ppb	3/24/17 12:00	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	3/28/17 14:19	MC
Calcium EPA 200.7	1510	100	ppb	3/24/17 12:00	MC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC
Lead by ICP-MS 200.8	1.6	1.0	ppb	3/28/17 14:19	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	3/24/17 12:00	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	3/24/17 14:55	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	3/28/17 14:19	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	3/28/17 14:19	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC

Approved By:
--------------



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB26327

Wateree Well MW 8 TM (NPDES/CCR)

Date & Time Sampled: March 21, 2017 08:25

Date & Time Submitted: March 22, 2017 13:30

Collected by: A.HILL Location Code: WAG08TM

MW 8 Login Record File: 170323001

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	3/28/17 14:19	MC		
Arsenic by ICP_MS 200.8	5.6	1.0	ppb	3/28/17 14:19	MC		
Barium by ICP-OES 200.7	147	10.0	ppb	3/24/17 12:00	MC		
Beryllium EPA 200.7	3.7	2.0	ppb	3/24/17 12:00	MC		
Boron - EPA 200.7	Less than	1000	ppb	3/24/17 12:00	MC		
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	3/28/17 14:19	MC		
Calcium EPA 200.7	20600	100	ppb	3/24/17 12:00	MC		
Chromium by ICP_MS 200.8	1.2	1.0	ppb	3/28/17 14:19	MC		
Cobalt by ICP_MS 200.8	14.2	1.0	ppb	3/28/17 14:19	MC		
Lead by ICP-MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC		
Lithium (CWA) 200.7	11.0	2.0	ppb	3/24/17 12:00	MC		
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	3/24/17 14:55	PRC		
Molybdenum - EPA 200.8	Less than	1.0	ppb	3/28/17 14:19	MC		
Selenium by ICP-MS 200.8	16.5	5.0	ppb	3/28/17 14:19	MC		
Thallium by ICP-MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC		

Approved By:
--------------



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB26329

Wateree Well AP1-05 TM (NPDES/CCR)

Date & Time Sampled: March 21, 2017 09:25

Date & Time Submitted: March 22, 2017 13:30

Collected by: A.HILL Location Code: WAAP105TM

AP1-05 Login Record File: 170323001

711 1 00							
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	3/28/17 14:19	MC		
Arsenic by ICP_MS 200.8	1.2	1.0	ppb	3/28/17 14:19	MC		
Barium by ICP-OES 200.7	201	10.0	ppb	3/24/17 12:00	МС		
Beryllium EPA 200.7	Less than	2.0	ppb	3/24/17 12:00	MC		
Boron - EPA 200.7	Less than	1000	ppb	3/24/17 12:00	МС		
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	3/28/17 14:19	MC		
Calcium EPA 200.7	12500	100	ppb	3/24/17 12:00	МС		
Chromium by ICP_MS 200.8	1.2	1.0	ppb	3/28/17 14:19	МС		
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC		
Lead by ICP-MS 200.8	Less than	1.0	ppb	3/28/17 14:19	МС		
Lithium (CWA) 200.7	Less than	2.0	ppb	3/24/17 12:00	МС		
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	3/24/17 14:55	PRC		
Molybdenum - EPA 200.8	Less than	1.0	ppb	3/28/17 14:19	МС		
Selenium by ICP-MS 200.8	Less than	5.0	ppb	3/28/17 14:19	МС		
Thallium by ICP-MS 200.8	Less than	1.0	ppb	3/28/17 14:19	МС		

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB26331

Wateree Well AP1-01 TM (NPDES/CCR)

Date & Time Sampled: March 21, 2017 12:05

Date & Time Submitted: March 22, 2017 13:30

Collected by: A.HILL Location Code: WAAP101TM

AP1-01 Login Record File: 170323001

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	3/28/17 14:19	MC
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC
Barium by ICP-OES 200.7	218	10.0	ppb	3/24/17 12:00	MC
Beryllium EPA 200.7	Less than	2.0	ppb	3/24/17 12:00	MC
Boron - EPA 200.7	1480	1000	ppb	3/24/17 12:00	MC
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	3/28/17 14:19	MC
Calcium EPA 200.7	53600	100	ppb	3/24/17 12:00	MC
Chromium by ICP_MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC
Lead by ICP-MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC
Lithium (CWA) 200.7	Less than	2.0	ppb	3/24/17 12:00	MC
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	3/24/17 14:55	PRC
Molybdenum - EPA 200.8	5.1	1.0	ppb	3/28/17 14:19	MC
Selenium by ICP-MS 200.8	Less than	5.0	ppb	3/28/17 14:19	MC
Thallium by ICP-MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB26334

Wateree Well AP1-04 TM (NPDES/CCR)

Date & Time Sampled: March 21, 2017 13:04
Date & Time Submitted: March 22, 2017 13:30

Collected by: A.HILL Location Code: WAAP104TM

AP1-04 Login Record File: 170323001

711 1 0 1	_5g 10001d 1 110. 17002000 1						
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	3/28/17 14:19	MC		
Arsenic by ICP_MS 200.8	81.4	5.0	ppb	4/7/17 12:10	MC		
Barium by ICP-OES 200.7	194	10.0	ppb	3/24/17 12:00	МС		
Beryllium EPA 200.7	Less than	2.0	ppb	3/24/17 12:00	МС		
Boron - EPA 200.7	1440	1000	ppb	3/24/17 12:00	МС		
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	3/28/17 14:19	МС		
Calcium EPA 200.7	92100	100	ppb	3/24/17 12:00	MC		
Chromium by ICP_MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC		
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC		
Lead by ICP-MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC		
Lithium (CWA) 200.7	Less than	2.0	ppb	3/24/17 12:00	MC		
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	3/24/17 14:55	PRC		
Molybdenum - EPA 200.8	Less than	1.0	ppb	3/28/17 14:19	MC		
Selenium by ICP-MS 200.8	Less than	5.0	ppb	3/28/17 14:19	MC		
Thallium by ICP-MS 200.8	Less than	1.0	ppb	3/28/17 14:19	МС		

Approved By: _	



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB26335

Wateree Well AP1-02 TM (NPDES/CCR)

Date & Time Sampled: March 21, 2017 13:45
Date & Time Submitted: March 22, 2017 13:30

Collected by: A.HILL Location Code: WAAP102TM

AP1-02 Login Record File: 170323001

/ II / V=							
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	3/28/17 14:19	MC		
Arsenic by ICP_MS 200.8	298	25.0	ppb	4/7/17 12:10	MC		
Barium by ICP-OES 200.7	194	10.0	ppb	3/24/17 12:00	MC		
Beryllium EPA 200.7	Less than	2.0	ppb	3/24/17 12:00	MC		
Boron - EPA 200.7	1340	1000	ppb	3/24/17 12:00	MC		
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	3/28/17 14:19	MC		
Calcium EPA 200.7	61100	100	ppb	3/24/17 12:00	MC		
Chromium by ICP_MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC		
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC		
Lead by ICP-MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC		
Lithium (CWA) 200.7	36.0	2.0	ppb	3/24/17 12:00	MC		
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	3/24/17 14:55	PRC		
Molybdenum - EPA 200.8	25.2	1.0	ppb	3/28/17 14:19	MC		
Selenium by ICP-MS 200.8	Less than	5.0	ppb	3/28/17 14:19	MC		
Thallium by ICP-MS 200.8	Less than	1.0	ppb	3/28/17 14:19	MC		
mailum by for -wio 200.0	Less than	1.0	ррь	3/20/17 14.19			

Approved By:	



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB26337

Wateree Well AP1-03 TM (NPDES/CCR)

Date & Time Sampled: March 21, 2017 14:47

Date & Time Submitted: March 22, 2017 13:30

Collected by: A.HILL Location Code: WAAP103TM

AP1-03 Login Record File: 170323001

	Dan autinos		<u> </u>	
Result	Reporting Limit(MRL)	Units	Completed Analysi  Date & Time	S Chemist
Less than	1.0	ppb	3/28/17 14:19	9 MC
1400	100	ppb	4/7/17 12:10	) MC
150	10.0	ppb	3/24/17 12:29	9 MC
Less than	2.0	ppb	3/24/17 12:29	9 MC
1000	1000	ppb	3/24/17 12:29	9 MC
Less than	1.0	ppb	3/28/17 14:19	9 MC
72500	100	ppb	3/24/17 12:29	9 MC
Less than	1.0	ppb	3/28/17 14:19	9 MC
Less than	1.0	ppb	3/28/17 14:19	9 MC
Less than	1.0	ppb	3/28/17 14:19	9 MC
84.9	2.0	ppb	3/24/17 12:29	Э МС
Less than	0.2	ppb	3/24/17 14:55	5 PRC
16.4	1.0	ppb	3/28/17 14:19	e MC
Less than	5.0	ppb	3/28/17 14:19	9 MC
Less than	1.0	ppb	3/28/17 14:19	9 MC
	Less than  1400  150  Less than  1000  Less than  72500  Less than  Less than  Less than  16.4  Less than	Limit(MRL)           Less than         1.0           1400         100           150         10.0           Less than         2.0           1000         1000           Less than         1.0           Less than         1.0           Less than         1.0           Less than         1.0           Less than         0.2           Less than         5.0	Limit(MRL)           Less than         1.0         ppb           1400         100         ppb           150         10.0         ppb           Less than         2.0         ppb           1000         1000         ppb           Less than         1.0         ppb           Less than         1.0         ppb           Less than         1.0         ppb           Less than         1.0         ppb           Less than         0.2         ppb           Less than         0.2         ppb           Less than         5.0         ppb	Less than         1.0         ppb         3/28/17         14:19           1400         100         ppb         4/7/17         12:10           150         10.0         ppb         3/24/17         12:29           Less than         2.0         ppb         3/24/17         12:29           Less than         1.0         ppb         3/24/17         12:29           Less than         1.0         ppb         3/28/17         14:19           72500         100         ppb         3/28/17         14:19           Less than         1.0         ppb         3/28/17         14:19           Less than         1.0         ppb         3/28/17         14:19           Less than         0.2         ppb         3/24/17         12:29           Less than         0.2         ppb         3/24/17         14:19           Less than         0.2         ppb         3/24/17         14:19           Less than         0.2         ppb         3/28/17         14:19           Less than         5.0         ppb         3/28/17         14:19

# SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL GROUND-WATER MONITORING REPORT

Facility: Wateree Station			Permit No.:		County: Richland
Date Sampled:			-	Time Sampled:	
year-month-day (Numerical)					
			1	STATION NUMBERS	
PARAMETI	E R NUMBER	MW-AP-01A	MW-FGD-01		
NAME	Lab. Certificate No.	32006	32006		
Field pH S.U.		4.980	4.330		
Field Sp. Conductivity micromhos/cm		68.000	54.000		
Field Turbidity NTU		2.70	3.60		
ORP mV		198.800	289.100		
Oxygen, dissolved mg/L		4.950	2.890		
Γemp (Celcius) degrees C		22.100	18.610		
Water level elevation ft		114.91	116.15		

Date:

Authorized Release By:

# SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL GROUND-WATER MONITORING REPORT

Facility: Wateree Station			Permit No.:		County: Richland
Date Sampled:	05/22/2017		_	Time Sampled:	12:00:00PM
year-month-day (Numerical)					
			1	STATION NUMBERS	
PARAMETE	E R NUMBER	MW-AP-05	MW-AP-08		
NAME	Lab. Certificate No.	32006	32006		
Field pH S.U.		5.890	5.690		
Field Sp. Conductivity micromhos/cm		503.000	555.000		
Field Turbidity NTU		6.90	6.80		
ORP mV		-63.900	-44.100		
Oxygen, dissolved mg/L		0.530	0.400		
Γemp (Celcius) degrees C		18.410	18.730		
Water level elevation ft		86.66	86.78		

Date:

Authorized Release By:

# SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL GROUND-WATER MONITORING REPORT

Facility:	Wateree Station	Permit No.:	County: Richland
Date Sampled:	05/23/2017	Time Sampled:	12:00:00PM
	year-month-day (Numerical)		
		CTATION NUMBERO	

#### STATION NUMBERS

PARAMETER	NUMBER	MW-AP-01	MW-AP-02	MW-AP-03	MW-AP-04
NAME	Lab. Certificate No.	32006	32006	32006	32006
Field pH S.U.		6.550	6.110	6.570	5.980
Field Sp. Conductivity	micromhos/cm	779.000	592.000	662.000	766.000
Field Turbidity NTU		1.80	9.80	2.50	9.10
ORP mV		-104.200	-23.000	-87.100	-66.800
Oxygen, dissolved mg/	L L	1.140	1.390	1.720	0.580
Temp (Celcius) degree	s C	20.580	20.300	19.360	17.270
Water level elevation f	ì	90.17	87.78	88.20	87.36

Authorized Release By:	Date:	

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

# Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC Client SDG: 424121 GEL Work Order: 424121

#### 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.

	Jack W	Crosh			
	/				
Reviewed by					

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

**Certificate of Analysis** 

Project:

Units

Result

Nominal

Recovery%

89.7

Acceptable Limits

(15%-125%)

Client ID:

PF

SCEG01716c

GEEL003

Report Date: June 21, 2017

DF Analyst Date Time Batch Method

Company: Address:

GEL Engineering, LLC

2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: AP1-01

Sample ID:

424121001

Matrix:

Parameter

Ground Water

Collect Date:

23-MAY-17 15:15

Result

Receive Date:

25-MAY-17

Collector: Client

Qualifier

EPA300.0 Fluoride in Liquid "As Received"		•							-				
Fluoride   0.351   0.033   0.100   mg/L   1   MXL2   06/03/17   03/12   1669572   Metals Analysis-ICP-MS   200.8/200.2   NPDES Metals "As Received"   2.00   10.0   ug/L   1.00   1   BAJ   05/30/17   1303   1668715   1208   1	Ion Chromatography	y											
Fluoride   0.351   0.033   0.100   mg/L   1   MXL2   06/03/17   03/12   1669572   Metals Analysis-ICP-MS	EPA300.0 Fluoride	in Liquid "As Rece	ived"										
200.8/200.2 NPDES Metals "As Received"   2.00   10.0   ug/L   1.00   1   BAJ   05/30/17   1303   1668715   1508	Fluoride	•	0.351	0.033	0.100	mg/L		1	MXL2	06/03/17	0312	1669572	1
Lithium       U       ND       2.00       10.0       ug/L       1.00       1       BAJ       05/30/17       1303       16687 15         Rad Gas Flow Proportional Counting       GFPC, Ra228, Liquid "As Received"         Radium-228       U       ND       1.94       3.00       pCi/L       BXFI       06/19/17       1529       1668804         Rad Radium-226       Lucas Cell, Ra226, liquid "As Received"         Radium-226       0.761       0.308       1.00       pCi/L       MXH8       06/21/17       0900       1668815         The following Prep Methods were performed:         Method       Description       Analyst       Date       Time       Prep Batch         The following Analytical Methods were performed:         Method       Description       Analyst Comments         Method       Description       Analyst Comments         Liquid "As Received"         Method       Description       Analyst Comments         Liquid "As Received"         Radium-226       Description       Analyst Comments	Metals Analysis-ICI	P-MS											
Rad Gas Flow Proportional Counting  GFPC, Ra228, Liquid "As Received"  Radium-228 U ND 1.94 3.00 pCi/L BXF1 06/19/17 1529 1668804  Rad Radium-226  Lucas Cell, Ra226, liquid "As Received"  Radium-226 0.761 0.308 1.00 pCi/L MXH8 06/21/17 0900 1668815  The following Prep Methods were performed:  Method Description Analyst Date Time Prep Batch  EPA 200.2 ICP-MS 200.2 PREP SXW1 05/26/17 0851 1668714  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	200.8/200.2 NPDES	S Metals "As Recei	ved"										
GFPC, Ra228, Liquid "As Received" Radium-228 U ND 1.94 3.00 pCi/L BXF1 06/19/17 1529 1668804 Rad Radium-226 Lucas Cell, Ra226, liquid "As Received" Radium-226 0.761 0.308 1.00 pCi/L MXH8 06/21/17 0900 1668815 The following Prep Methods were performed:  Method Description Analyst Date Time Prep Batch EPA 200.2 ICP-MS 200.2 PREP SXW1 05/26/17 0851 1668714  The following Analytical Methods were performed:  Method Description Analyst Comments  SXW1 05/26/17 0851 1668714  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	Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	05/30/17	1303	1668715	2
Radium-228       U       ND       1.94       3.00       pCi/L       BXF1       06/19/17       1529       1668804         Rad Radium-226       U       ND       1.94       3.00       pCi/L       BXF1       06/19/17       1529       1668804         Lucas Cell, Ra226, liquid "As Received"       Company of the color of the colo	Rad Gas Flow Propo	ortional Counting											
Rad Radium-226         Lucas Cell, Ra226, liquid "As Received"         Radium-226       0.761       0.308       1.00       pCi/L       MXH8 06/21/17 0900 1668815         The following Prep Methods were performed:         Method       Description       Analyst       Date       Time       Prep Batch         EPA 200.2       ICP-MS 200.2 PREP       SXW1       05/26/17       0851       1668714         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	GFPC, Ra228, Liqui	id "As Received"											
Lucas Cell, Ra226, liquid "As Received"         Radium-226       0.761       0.308       1.00       pCi/L       MXH8       06/21/17       0900       1668815         The following Prep Methods were performed:         Method       Description       Analyst       Date       Time       Prep Batch       Prep Batch         EPA 200.2       ICP-MS 200.2 PREP       SXW1       05/26/17       0851       1668714         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			ND	1.94	3.00	pCi/L			BXF1	06/19/17	1529	1668804	3
Radium-226         0.761         0.308         1.00         pCi/L         MXH8         06/21/17         0900         1668815           The following Prep Methods were performed:         Method         Description         Analyst         Date         Time         Prep Batch         V           EPA 200.2         ICP-MS 200.2 PREP         SXW1         05/26/17         0851         1668714           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	Rad Radium-226												
Radium-226         0.761         0.308         1.00         pCi/L         MXH8         06/21/17         0900         1668815           The following Prep Methods were performed:         Method         Description         Analyst         Date         Time         Prep Batch         V           EPA 200.2         ICP-MS 200.2 PREP         SXW1         05/26/17         0851         1668714           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	Lucas Cell, Ra226, 1	liquid "As Received	<b>l</b> "										
MethodDescriptionAnalystDateTimePrep BatchEPA 200.2ICP-MS 200.2 PREPSXW105/26/1708511668714The following Analytical Methods were performed:MethodDescriptionAnalyst Comments1EPA 300.02EPA 200.8 SC_NPDES3EPA 904.0/SW846 9320 Modified		•		0.308	1.00	pCi/L			MXH8	06/21/17	0900	1668815	4
EPA 200.2 ICP-MS 200.2 PREP SXW1 05/26/17 0851 1668714  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	The following Prep	Methods were perfe	ormed:										
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	Method	Description			Analyst	Date	T	ime	Pr	ep Batch			_
Method         Description         Analyst Comments           1         EPA 300.0           2         EPA 200.8 SC_NPDES           3         EPA 904.0/SW846 9320 Modified	EPA 200.2	ICP-MS 200.2 P	REP		SXW1	05/26/17	08	851	160	58714			_
1 EPA 300.0 2 EPA 200.8 SC_NPDES 3 EPA 904.0/SW846 9320 Modified	The following Anal	lytical Methods wer	re performed:										
2 EPA 200.8 SC_NPDES 3 EPA 904.0/SW846 9320 Modified	Method	Description				A	nalyst	Con	nments	8			
3 EPA 904.0/SW846 9320 Modified	1	EPA 300.0											
	2	EPA 200.8 SC_N	PDES										
A DDA 000 1 N 1'C' 1	3	EPA 904.0/SW84	6 9320 Modified										
4 EPA 903.1 Modified	4	EPA 903.1 Modif	fied										

DL

RL

#### **Notes:**

Barium-133 Tracer

Column headers are defined as follows:

Surrogate/Tracer Recovery

DF: Dilution Factor Lc/LC: Critical Level DL: Detection Limit PF: Prep Factor MDA: Minimum Detectable Activity **RL**: Reporting Limit

Test

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

GFPC, Ra228, Liquid "As Received"

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

**Certificate of Analysis** 

Project:

Result

Nominal

Recovery%

89.5

Acceptable Limits

(15%-125%)

Client ID:

SCEG01716c

GEEL003

Report Date: June 21, 2017

Company:

GEL Engineering, LLC

Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: AP1-02

Sample ID:

424121002

Matrix:

Ground Water

Collect Date:

23-MAY-17 16:55

Receive Date:

25-MAY-17

Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograph	ıy											
EPA300.0 Fluoride	in Liquid "As Re	ceived"										
Fluoride	-	0.269	0.033	0.100	mg/L		1	MXL2	06/03/17	0439	1669572	1
Metals Analysis-IC	P-MS											
200.8/200.2 NPDE	ES Metals "As Red	ceived"										
Lithium	J	9.79	2.00	10.0	ug/L	1.00	1	BAJ	05/30/17	1316	1668715	2
Rad Gas Flow Prop	ortional Counting	5										
GFPC, Ra228, Liqu	uid "As Received"	'										
Radium-228	U	ND	1.29	3.00	pCi/L			BXF1	06/19/17	1529	1668804	3
Rad Radium-226												
Lucas Cell, Ra226,	liquid "As Receiv	ved"										
Radium-226	_	0.517	0.220	1.00	pCi/L			MXH8	06/21/17	0900	1668815	4
The following Prep	Methods were pe	erformed:										
Method	Description	ı		Analyst	Date	-	Γime	e Pro	ep Batch			
EPA 200.2	ICP-MS 200.2	2 PREP		SXW1	05/26/17	(	0851	166	58714			
The following Ana	alytical Methods v	vere perform	ed:									
Method	Description				A	Analyst	Coı	nments	3			
1	EPA 300.0		·		·							
2	EPA 200.8 SC	_NPDES										

#### **Notes:**

Barium-133 Tracer

3

Column headers are defined as follows:

Surrogate/Tracer Recovery

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

EPA 904.0/SW846 9320 Modified

GFPC, Ra228, Liquid "As Received"

EPA 903.1 Modified

Test

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: June 21, 2017

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: AP1-03
Sample ID: 424121003
Matrix: Ground Water
Collect Date: 23-MAY-17 18:50

Receive Date: 25-MAY-17
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograph	hy											
EPA300.0 Fluoride	e in Liquid "As Re	eceived"										
Fluoride	•	0.715	0.033	0.100	mg/L		1	MXL2	06/03/17	0507	1669572	1
Metals Analysis-IC	CP-MS											
200.8/200.2 NPDF	ES Metals "As Rec	ceived"										
Lithium		101	2.00	10.0	ug/L	1.00	1	BAJ	05/30/17	1319	1668715	2
Rad Gas Flow Prop	portional Counting	3										
GFPC, Ra228, Liq	uid "As Received'	•										
Radium-228	U	ND	1.16	3.00	pCi/L			BXF1	06/19/17	1529	1668804	3
Rad Radium-226												
Lucas Cell, Ra226,	, liquid "As Receiv	ved"										
Radium-226	_	1.57	0.158	1.00	pCi/L			MXH8	06/21/17	0930	1668815	4
The following Prep	Methods were pe	erformed:										
Method	Description	n		Analyst	Date	,	Time	e Pr	ep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		SXW1	05/26/17		0851	16	68714			
TP1 - C-11 - ' A	.1 .41 N f . d 1 .		1.									

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 RecoveryTestResultNominalRecovery%Acceptable LimitsBarium-133 TracerGFPC, Ra228, Liquid "As Received"90.1(15%-125%)

Notes:

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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

**QC Summary** 

Report Date: June 21, 2017

Page 1 of 3

**GEL Engineering, LLC** 2040 Savage Rd

Charleston, South Carolina

**Contact: Robert Gardner** 

Workorder: 424121

Parmname	NON	Л	Sample	Qual	QC	Units	RPD%	REC%	Range Anl	st	Date T	l'ime
<b>Ion Chromatography</b> Batch 1669572												
QC1203800284 424121003 I Fluoride	DUP		0.715		0.720	mg/L	0.613		(0%-20%) M2	XL2	06/03/17	05:36
QC1203800283 LCS Fluoride	2.50				2.34	mg/L		93.5	(90%-110%)		06/02/17	23:20
QC1203800282 MB Fluoride				U	ND	mg/L					06/02/17	22:52
QC1203800285 424121003 I Fluoride	PS 2.50		0.715		3.13	mg/L		96.7	(90%-110%)		06/03/17	06:05
Metals Analysis - ICPMS Batch 1668715												
QC1203798184 424121001 I Lithium	DUP	U	ND	U	ND	ug/L	N/A		1	BAJ	05/30/17	13:07
QC1203798183 LCS Lithium	50.0				53.9	ug/L		108	(80%-120%)		05/30/17	13:00
QC1203798182 MB Lithium				U	ND	ug/L					05/30/17	12:57
QC1203798185 424121001 1 Lithium	MS 50.0	U	ND		50.7	ug/L		101	(75%-125%)		05/30/17	13:10
QC1203798186 424121001 S Lithium	SDILT	U	ND	U	ND	ug/L	N/A		(0%-10%)		05/30/17	13:13

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

## **QC Summary**

workorder: 424121									Page 2 of 3
Parmname	NOM	I Sample	Qual	QC	Units	RPD%	REC%	Range Anlst	Date Time
Rad Gas Flow Batch 1668804									
QC1203798409 424115006 Radium-228	6 DUP	U 0.561	U	0.390	pCi/L	N/A		N/A BXF1	06/19/17 16:50
QC1203798410 LCS Radium-228	20.2			19.0	pCi/L		94.1	(75%-125%)	06/19/17 15:33
QC1203798408 MB Radium-228			U	0.546	pCi/L				06/19/17 15:29
Rad Ra-226 Batch 1668815									
QC1203798449 424115006 Radium-226	6 DUP	0.630		0.725	pCi/L	14.1		(0% - 100%) MXH8	06/21/17 09:30
QC1203798451 LCS Radium-226	26.0			20.0	pCi/L		77.2	(75%-125%)	06/21/17 09:30
QC1203798448 MB Radium-226			U	0.0822	pCi/L				06/21/17 09:30
QC1203798450 424115000 Radium-226	6 MS	0.630		120	pCi/L		91.8	(75%-125%)	06/21/17 09:30

#### **Notes:**

Workorder:

424121

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

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

## **QC Summary**

Workorder: 424121

Page 3 of 3

Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

- 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 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
- 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.

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

# Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC Client SDG: 424119 GEL Work Order: 424119

#### 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.

	Jacob N	lroh		
Reviewed by	,			

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

**Certificate of Analysis** 

Project:

Client ID:

Report Date: June 21, 2017

SCEG01716c

GEEL003

Company:

GEL Engineering, LLC

2040 Savage Rd Address:

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: FGD-01

Sample ID:

424119001

Matrix:

**Ground Water** 

Collect Date:

22-MAY-17 12:30

Receive Date:

25-MAY-17

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograp	phy											
EPA300.0 Fluorio	de in Liquid "As Re	eceived"										
Fluoride	U	ND	0.033	0.100	mg/L		1	MAR1	06/05/17	1622	1669569	1
Metals Analysis-l	ICP-MS											
200.8/200.2 NPD	DES Metals "As Red	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	05/27/17	1802	1668713	2
Rad Gas Flow Pro	oportional Counting	g										
GFPC, Ra228, Li	quid "As Received'	"										
Radium-228	U	ND	1.32	3.00	pCi/L			BXF1	06/21/17	1113	1668805	3
Rad Radium-226												
Lucas Cell, Ra22	6, liquid "As Receiv	ved"										
Radium-226	•	0.572	0.284	1.00	pCi/L			MXH8	06/20/17	0925	1668820	4
The following Pro	ep Methods were pe	erformed:										
Method	Description	n		Analyst	Date	,	Tim	e Pr	ep Batch			
EPA 200.2	ICP-MS 200.2	2 PREP		SXW1	05/26/17		0852	160	68711			
The following A	nalytical Methods v	vere performe	ed:									
M . 41 1	December					A 1 .						

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

EPA 903.1 Modified

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			86.3	(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

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

**Certificate of Analysis** 

Project:

Units

Result

Nominal

Recovery%

89.6

Acceptable Limits

(15%-125%)

Client ID:

PF

SCEG01716c

GEEL003

Report Date: June 21, 2017

DF Analyst Date Time Batch Method

Company: Address:

GEL Engineering, LLC

2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: MW-1A

Sample ID:

424119002

Matrix: Collect Date: Ground Water 22-MAY-17 13:00

Result

Receive Date:

Parameter

25-MAY-17

Collector: Client

Qualifier

1 41141110101	Q	1100011			CITIES			Timery se z acc		Duten	1.1011104
Ion Chromatography											
EPA300.0 Fluoride in	Liquid "As Re	eceived"									
Fluoride	U	ND	0.033	0.100	mg/L		1	MAR1 06/05/17	1748	1669569	1
Metals Analysis-ICP-	MS										
200.8/200.2 NPDES	Metals "As Re	ceived"									
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ 05/27/17	1805	1668713	2
Rad Gas Flow Propor	tional Counting	g									
GFPC, Ra228, Liquid	"As Received	"									
Radium-228	U	ND	1.54	3.00	pCi/L			BXF1 06/21/17	1113	1668805	3
Rad Radium-226											
Lucas Cell, Ra226, lic	quid "As Recei	ved"									
Radium-226	U	ND	0.314	1.00	pCi/L			MXH8 06/20/17	0925	1668820	4
The following Prep M	lethods were p	erformed:									
Method	Description	n		Analyst	Date	Ti	ime	Prep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		SXW1	05/26/17	08	352	1668711			
The following Analy	tical Methods v	were performed:									
Method	Description	1			A	analyst (	Con	nments			
1	EPA 300.0					-					
2	EPA 200.8 SC	C_NPDES									
3		W846 9320 Modified									
4	EPA 903.1 M	odified									

DL

RL

#### **Notes:**

Barium-133 Tracer

Column headers are defined as follows:

Surrogate/Tracer Recovery

DF: Dilution Factor Lc/LC: Critical Level DL: Detection Limit PF: Prep Factor MDA: Minimum Detectable Activity **RL**: Reporting Limit

Test

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

GFPC, Ra228, Liquid "As Received"

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

**Certificate of Analysis** 

Project:

Client ID:

Report Date: June 21, 2017

SCEG01716c

GEEL003

Company:

GEL Engineering, LLC

Address:

2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner

Client Sample ID: FB-01

Wateree CCR

Sample ID:

424119003

Matrix:

Ground Water

Collect Date:

22-MAY-17 13:05

Receive Date:

Collector:

25-MAY-17

Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograp	phy											
EPA300.0 Fluorio	de in Liquid "As Re	eceived"										
Fluoride	U	ND	0.033	0.100	mg/L		1	MAR1	06/05/17	1817	1669569	1
Metals Analysis-l	ICP-MS											
200.8/200.2 NPI	DES Metals "As Rec	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	05/27/17	1809	1668713	2
Rad Gas Flow Pro	oportional Counting	or D										
GFPC, Ra228, Li	quid "As Received"	"										
Radium-228	U	ND	1.37	3.00	pCi/L			BXF1	06/21/17	1113	1668805	3
Rad Radium-226												
Lucas Cell, Ra22	6, liquid "As Recei	ved"										
Radium-226		0.813	0.316	1.00	pCi/L			MXH8	06/20/17	0925	1668820	4
The following Pro	ep Methods were pe	erformed:										
Method	Description	n		Analyst	Date	-	Гim	e Pr	ep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		SXW1	05/26/17	(	0852	16	68711			
FF1 6 11 1 1			_									

## 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	

EPA 903.1 Modified

Surrogate/Tracer Recovery Test Result Nominal Recovery% Acceptable Limits

Barium-133 Tracer GFPC, Ra228, Liquid "As Received"

90.2 (15%-125%)

#### **Notes:**

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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

**Certificate of Analysis** 

Project:

Units

Result

Nominal

Recovery%

100

Acceptable Limits

(15%-125%)

Client ID:

PF

SCEG01716c

GEEL003

Report Date: June 21, 2017

DF Analyst Date Time Batch Method

Company:

GEL Engineering, LLC 2040 Savage Rd

Address: 2040

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: MW-99

MW-99

Sample ID:

424119004

Matrix:

Parameter

Ground Water

Collect Date:

22-MAY-17 15:55

Result

Receive Date: Collector:

25-MAY-17 Client

Qualifier

Ion Chromatograp	phy										
EPA300.0 Fluorio	de in Liquid "As Received"										
Fluoride	0.421	0.033	0.100	mg/L		1	MAR1	06/05/17	1846	1669569	1
Metals Analysis-l	ICP-MS										
200.8/200.2 NPI	DES Metals "As Received"										
Lithium	14.7	2.00	10.0	ug/L	1.00	1	BAJ	05/27/17	1812	1668713	2
Rad Gas Flow Pro	oportional Counting										
GFPC, Ra228, Li	quid "As Received"										
Radium-228	1.59	1.27	3.00	pCi/L			BXF1	06/21/17	1113	1668805	3
Rad Radium-226											
Lucas Cell, Ra22	6, liquid "As Received"										
Radium-226	0.805	0.143	1.00	pCi/L			MXH8	06/20/17	0925	1668820	4
The following Pro	ep Methods were performed:										
Method	Description		Analyst	Date	Т	Γim	e Pre	ep Batch			
EPA 200.2	ICP-MS 200.2 PREP		SXW1	05/26/17	0	852	166	58711			<del></del>
The following A	nalytical Methods were performed:										
Method	Description			A	nalyst	Co	mments				
1	EPA 300.0				,						
2	EPA 200.8 SC_NPDES										
3	EPA 904.0/SW846 9320 Modified										
4	EPA 903.1 Modified										

DL

RL

#### **Notes:**

Barium-133 Tracer

Column headers are defined as follows:

Surrogate/Tracer Recovery

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

Test

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

GFPC, Ra228, Liquid "As Received"

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

**Certificate of Analysis** 

Project:

Units

Result

Nominal

Recovery%

98.8

Client ID:

PF

Report Date: June 21, 2017

Time Batch Method

Acceptable Limits

(15%-125%)

SCEG01716c

GEEL003

DF Analyst Date

Company:

GEL Engineering, LLC

Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: MW-08

Sample ID:

424119005

Matrix:

Parameter

Ground Water

Collect Date:

22-MAY-17 16:05

Result

Receive Date:

25-MAY-17

Collector: Client

Qualifier

Ion Chromatography								
EPA300.0 Fluoride in	n Liquid "As Received"							
Fluoride	0.41	2 0.033	0.100	mg/L	1	MAR1 06/05/17	1915 1669569	1
Metals Analysis-ICP-	-MS							
200.8/200.2 NPDES	Metals "As Received"							
Lithium	14.	4 2.00	10.0	ug/L	1.00 1	BAJ 05/27/17	1815 1668713	2
Rad Gas Flow Propor	rtional Counting							
GFPC, Ra228, Liquid	d "As Received"							
Radium-228	U NI	D 1.41	3.00	pCi/L		BXF1 06/21/17	1234 1668805	3
Rad Radium-226								
Lucas Cell, Ra226, lie	quid "As Received"							
Radium-226	1.3	0.243	1.00	pCi/L		MXH8 06/20/17	0925 1668820	4
The following Prep M	Methods were performed	l:						
Method	Description		Analyst	Date	Time	Prep Batcl	1	
EPA 200.2	ICP-MS 200.2 PREP		SXW1	05/26/17	0852	1668711		
The following Analy	tical Methods were perf	formed:						
Method	Description			A	nalyst Con	nments		
1	EPA 300.0				<del>-</del>			
2	EPA 200.8 SC_NPDES							
3	EPA 904.0/SW846 9320	Modified						
4	EPA 903.1 Modified							

DL

RL

#### **Notes:**

Barium-133 Tracer

Column headers are defined as follows:

Surrogate/Tracer Recovery

DF: Dilution Factor Lc/LC: Critical Level DL: Detection Limit PF: Prep Factor MDA: Minimum Detectable Activity **RL**: Reporting Limit

Test

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

GFPC, Ra228, Liquid "As Received"

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: June 21, 2017

Company:

GEL Engineering, LLC

Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: AP1-05

Sample ID:

424119006

Matrix:

Ground Water

Collect Date:

22-MAY-17 17:15

Receive Date: Collector:

25-MAY-17 Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograph	y											
EPA300.0 Fluoride	in Liquid "As Re	ceived"										
Fluoride	J	0.0624	0.033	0.100	mg/L		1	MAR1	06/05/17	1944	1669569	1
Metals Analysis-IC	P-MS											
200.8/200.2 NPDE	S Metals "As Rec	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	05/27/17	1825	1668713	2
Rad Gas Flow Prop	ortional Counting	Ţ,										
GFPC, Ra228, Liqu	id "As Received"	1										
Radium-228	U	ND	1.21	3.00	pCi/L			BXF1	06/21/17	1114	1668805	3
Rad Radium-226												
Lucas Cell, Ra226,	liquid "As Receiv	ved"										
Radium-226	U	ND	0.315	1.00	pCi/L			MXH8	06/20/17	0955	1668820	4
The following Prep	Methods were pe	erformed:										
Method	Description	1		Analyst	Date	-	Γime	e Pr	ep Batch			
EPA 200.2	ICP-MS 200.2	2 PREP		SXW1	05/26/17	(	)852	16	68711			
Tris Calla Cara Amai	1 4 1 1 1 1		1.									

The following Analytical Methods were performed:

Method Description **Analyst Comments** EPA 300.0 2

EPA 200.8 SC\_NPDES

3 EPA 904.0/SW846 9320 Modified

EPA 903.1 Modified

Surrogate/Tracer Recovery Test Result Nominal Recovery% Acceptable Limits Barium-133 Tracer (15%-125%) GFPC, Ra228, Liquid "As Received" 96

#### **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

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

**Certificate of Analysis** 

Project:

Client ID:

Report Date: June 21, 2017

SCEG01716c

GEEL003

Company: Address:

GEL Engineering, LLC

2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: AP1-04

Sample ID:

424119007

Matrix:

Ground Water

Collect Date: Receive Date: 23-MAY-17 08:00 25-MAY-17

Collector:

Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst Date	Time Batch	Method
Ion Chromatography	y									
EPA300.0 Fluoride	in Liquid "As Re	eceived"								
Fluoride	-	0.195	0.033	0.100	mg/L	,	1	MAR1 06/05/17	2111 1669569	1
Metals Analysis-ICI	P-MS									
200.8/200.2 NPDE	S Metals "As Red	ceived"								
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ 05/27/17	1828 1668713	2
Rad Gas Flow Propo	ortional Counting	5								
GFPC, Ra228, Liqu	id "As Received'	'								
Radium-228		1.67	1.16	3.00	pCi/L	,		BXF1 06/21/17	1114 1668805	3
Rad Radium-226										
Lucas Cell, Ra226,	liquid "As Receiv	ved"								
Radium-226		0.950	0.190	1.00	pCi/L			MXH8 06/20/17	0955 1668820	4
The following Prep	Methods were pe	erformed:								
Method	Description	1		Analyst	Date		Time	Prep Batch	l	
EPA 200.2	ICP-MS 200.2	2 PREP		SXW1	05/26/1	7	0852	1668711		
The following Anal	lytical Methods v	vere performed:								
Method	Description					Analys	t Cor	nments		
1	EPA 300.0									
2	EPA 200.8 SC	_NPDES								
3		V846 9320 Modified								
4	EPA 903.1 Mo	odified								
Surrogate/Tracer Re	ecovery Test				Result	Nomin	al	Recovery%	Acceptable Li	mits
Barium-133 Tracer	GFPC, I	Ra228, Liquid "As Received"						90.8	(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

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

**QC Summary** 

Report Date: June 21, 2017

Page 1 of 4

GEL Engineering, LLC 2040 Savage Rd

Charleston, South Carolina Robert Gardner

Workordor: 424110

**Contact:** 

Parmname	NO	)M	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography Batch 1669569											
QC1203800278 424119001 E Fluoride	DUP	U	ND	U	ND	mg/L	N/A			MAR1	06/05/17 16:51
QC1203800279 424119011 E Fluoride	DUP	U	ND	U	ND	mg/L	N/A				06/05/17 23:35
QC1203800277 LCS Fluoride	2.50	)			2.66	mg/L		106	(90%-110%)	1	06/05/17 15:53
QC1203800276 MB Fluoride				U	ND	mg/L					06/05/17 15:24
QC1203800280 424119001 F Fluoride	es 2.50	) U	ND		2.63	mg/L		105	(90%-110%)	1	06/05/17 17:19
QC1203800281 424119011 F Fluoride	PS 2.50	) U	ND		2.71	mg/L		107	(90%-110%)	1	06/06/17 00:04
Metals Analysis - ICPMS Batch 1668713											
QC1203798168 424115001 E Lithium	DUP		12.4		12.2	ug/L	0.919 ^		(+/-10.0)	) BAJ	05/27/17 17:12
QC1203798169 424115002 I Lithium	DUP	J	8.90	J	9.32	ug/L	4.65 ^		(+/-10.0)	)	05/27/17 17:31
QC1203798167 LCS Lithium	50.0	)			52.4	ug/L		105	(80%-120%)		05/27/17 17:05
QC1203798166 MB Lithium				U	ND	ug/L					05/27/17 17:02

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

## **QC Summary**

						<u> 20 k</u>	Jummai	<u>.y</u>					
	24119												Page 2 of 4
Parmname			NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Metals Analysis - ICl Batch 166	<b>PMS</b> 8713												
QC1203798170 Lithium	424115001	MS	50.0		12.4		61.0	ug/L		97.3	(75%-125%)	BAJ	05/27/17 17:15
QC1203798171 Lithium	424115002	MS	50.0	J	8.90		59.6	ug/L		101	(75%-125%)		05/27/17 17:34
QC1203798172 Lithium	424115001	SDILT			12.4	J	2.45	ug/L	.777		(0%-10%)		05/27/17 17:18
QC1203798173 Lithium	424115002	SDILT		J	8.90	U	ND	ug/L	N/A		(0%-10%)		05/27/17 17:37
Rad Gas Flow Batch 1666	8805												
QC1203798412 Radium-228	424119008	DUP		U	0.638	U	0.561	pCi/L	N/A		N/A	A BXF1	06/21/17 11:18
QC1203798413 Radium-228	LCS		20.2				18.8	pCi/L		93.1	(75%-125%)		06/21/17 11:18
QC1203798411 Radium-228	MB					U	-0.0329	pCi/L					06/21/17 11:18
<b>Rad Ra-226</b> Batch 1666	8820												
QC1203798460 Radium-226	424119006	DUP		U	0.227	U	0.347	pCi/L	N/A		N/A	AMXH8	06/20/17 10:26
QC1203798462 Radium-226	LCS		26.0				23.2	pCi/L		89.5	(75%-125%)		06/20/17 10:26
QC1203798459 Radium-226	MB					U	-0.0475	pCi/L					06/20/17 09:55

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

## **QC Summary**

Workorder: 424119 Page 3 of 4 **Parmname NOM** Sample Qual QC Units RPD% REC% Range Anlst Date Time Rad Ra-226 1668820 Batch OC1203798461 424119006 MS 130 110 Radium-226 U 0.227 pCi/L 84.5 (75%-125%) MXH8 06/20/17 10:26

#### **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 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
- 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

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

## **QC Summary**

Workorder: 424119 Page 4 of 4 Pa

Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

- 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.
- ٨ 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
- 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 e reporting purposes
- Preparation or preservation holding time was exceeded 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.



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB27171

Wateree Well FGD-01 (NPDES/CCR)

Date & Time Sampled: May 22, 2017 12:30
Date & Time Submitted: May 23, 2017 15:55

Collected by: A.HILL Location Code: WAFGD01TDS

FGD-01 Login Record File: 170524001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist	
Chlorides by IC EPA 300.0	4.77	0.50	mg/L	5/25/17 16:23	ВВ	
pH by SM4500HB(2011)	4.87	0.00	S.U.	5/24/17 09:30	BF	
Holding Time of 15 minutes has been exceeded.						
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	5/25/17 16:23	ВВ	
Total Dissolved Solid-SM2540C	35	2.0	mg/L	5/25/17 14:00	BF	



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

REPORT TO:

Mike Moore C221

Sample ID: AB27172

Wateree NPDES Well MW 1 (NPDES)

Date & Time Sampled: May 22, 2017 13:00

Date & Time Submitted: May 23, 2017 15:55

Collected by: A.HILL Location Code: WAG01TDS

MW 1 Login Record File: 170524001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist	
Chlorides by IC EPA 300.0	4.60	0.50	mg/L	5/25/17 16:23	ВВ	
pH by SM4500HB(2011)	4.65	0.00	S.U.	5/24/17 09:30	BF	
Holding Time of 15 minutes has been exceeded.						
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	5/25/17 16:23	ВВ	
Total Dissolved Solid-SM2540C	32	2.0	mg/L	5/25/17 14:00	BF	



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB27175

Wateree Well MW 8 (NPDES/CCR)

Date & Time Sampled: May 22, 2017 16:05
Date & Time Submitted: May 23, 2017 15:55

Collected by: A.HILL Location Code: WAG08TDS

MW 8 Login Record File: 170524001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	15.8	1.0	mg/L	5/25/17 16:23	ВВ
pH by SM4500HB(2011)	5.93	0.00	S.U.	5/24/17 09:30	BF
Holding Time of 15 minutes has been	exceeded.				
Sulfates by IC EPA 300.0	135	1.0	mg/L	5/25/17 16:23	BB
Total Dissolved Solid-SM2540C	377	2.0	mg/L	5/25/17 14:00	BF

Approved By:		
AUDIOVED DV.		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB27176

Wateree Well AP1-05 (NPDES/CCR)

Date & Time Sampled: May 22, 2017 17:15

Date & Time Submitted: May 23, 2017 15:55

Collected by: A.HILL Location Code: WAAP105TDS

AP1-05 Login Record File: 170524001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist		
Chlorides by IC EPA 300.0	17.9	0.50	mg/L	5/25/17 16:23	ВВ		
pH by SM4500HB(2011)	6.17	0.00	S.U.	5/24/17 09:30	BF		
Holding Time of 15 minutes has been e	Holding Time of 15 minutes has been exceeded.						
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	5/25/17 16:23	ВВ		
Total Dissolved Solid-SM2540C	283	2.0	mg/L	5/25/17 14:00	BF		



Mike Moore C221

## Central Laboratory (P-08) 2102 North Lake Drive Columbia, SC 29212

Tel: (803)217-9384 Fax: (803) 217-9911

REPORT TO:

Sample ID: AB27177

January 31, 2018

Wateree Well AP1-04 (NPDES/CCR)

Date & Time Sampled: May 23, 2017 08:00

Date & Time Submitted: May 23, 2017 15:55

Collected by: A.HILL Location Code: WAAP104TDS

AP1-04 Login Record File: 170524001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist	
Chlorides by IC EPA 300.0	10.2	0.50	mg/L	5/25/17 16:23	ВВ	
pH by SM4500HB(2011)	6.43	0.00	S.U.	5/24/17 09:30	BF	
Holding Time of 15 minutes has been exceeded.						
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	5/25/17 16:23	ВВ	
Total Dissolved Solid-SM2540C	432	2.0	mg/L	5/25/17 14:00	BF	

Approved By:		
AUDIOVED DV.		



Tel: (803)217-9384 Fax: (803) 217-9911

REPORT TO:

Mike Moore C221

January 31, 2018

Sample ID: AB27228

Wateree Well AP1-01 (NPDES/CCR)

Date & Time Sampled: May 23, 2017 15:15

Date & Time Submitted: May 24, 2017 09:11

Collected by: S.SANSBURY Location Code: WAAP101TDS

AP1-01 Login Record File: 170524005

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist	
Chlorides by IC EPA 300.0	168	2.5	mg/L	5/25/17 16:31	ВВ	
pH by SM4500HB(2011)	6.73	0.00	S.U.	5/24/17 09:30	BF	
Holding Time of 15 minutes has been exceeded.						
Sulfates by IC EPA 300.0	3.7	2.5	mg/L	5/25/17 16:31	ВВ	
Total Dissolved Solid-SM2540C	433	2.0	mg/L	5/25/17 14:00	BF	



Tel: (803)217-9384 Fax: (803) 217-9911

REPORT TO:

Mike Moore C221

Sample ID: AB27229

January 31, 2018

Wateree Well AP1-02 (NPDES/CCR)

Date & Time Sampled: May 23, 2017 16:55

Date & Time Submitted: May 24, 2017 09:11

Collected by: S.SANSBURY Location Code: WAAP102TDS

AP1-02 Login Record File: 170524005

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	91.1	2.5	mg/L	5/25/17 16:31	ВВ
pH by SM4500HB(2011)	6.27	0.00	S.U.	5/24/17 09:30	BF
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	23.5	2.5	mg/L	5/25/17 16:31	BB
Total Dissolved Solid-SM2540C	341	2.0	mg/L	5/25/17 14:00	BF

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

**REPORT TO:** 

Mike Moore C221

January 31, 2018

Sample ID: AB27230

Wateree Well AP1-03 (NPDES/CCR)

Date & Time Sampled: May 23, 2017 18:50
Date & Time Submitted: May 24, 2017 09:11

Collected by: S.SANSBURY Location Code: WAAP103TDS

AP1-03 Login Record File: 170524005

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	74.3	0.50	mg/L	5/25/17 16:31	ВВ
pH by SM4500HB(2011)	6.62	0.00	S.U.	5/24/17 09:30	BF
Holding Time of 15 minutes has been e.	xceeded.				
Sulfates by IC EPA 300.0	90.9	0.50	mg/L	5/25/17 16:31	ВВ
Total Dissolved Solid-SM2540C	405	2.0	mg/L	5/25/17 14:00	BF



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB27182

Wateree Well FGD-01 TM (NPDES/CCR)

Date & Time Sampled:
Date & Time Submitted:

May 22, 2017 12:30 May 23, 2017 15:55

Collected by: A.HILL

Location Code: WAFGD01TM

FGD-01 Login Record File: 170524001

FGD-01	Logiii Necold File. 170324001					
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	5/25/17 17:00	CDB	
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	5/25/17 17:00	CDB	
Barium by ICP-OES 200.7	66.0	10.0	ppb	5/25/17 11:45	CDB	
Beryllium EPA 200.7	Less than	2.0	ppb	5/25/17 11:45	CDB	
Boron - EPA 200.7	Less than	1000	ppb	5/25/17 11:45	CDB	
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/25/17 17:00	CDB	
Calcium EPA 200.7	669	100	ppb	5/25/17 11:45	CDB	
Chromium by ICP_MS 200.8	Less than	1.0	ppb	5/25/17 17:00	CDB	
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	5/25/17 17:00	CDB	
Lead by ICP-MS 200.8	1.64	1.0	ppb	5/25/17 17:00	CDB	
Lithium (CWA) 200.7	Less than	2.0	ppb	5/25/17 11:45	CDB	
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/30/17 15:56	PRC	
Molybdenum - EPA 200.8	Less than	1.0	ppb	5/30/17 14:33	CDB	
Selenium by ICP-MS 200.8	Less than	5.0	ppb	5/25/17 17:00	CDB	
Thallium by ICP-MS 200.8	Less than	1.0	ppb	5/25/17 17:00	CDB	

Approved By:	



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB27183

Wateree NPDES Well MW 1 Total Metals (NPDES)

Date & Time Sampled: May 22, 2017 13:00

Date & Time Submitted: May 23, 2017 15:55

Collected by: A.HILL Location Code: WAG01TM

MW 1 Login Record File: 170524001

			•		
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	5/25/17 17:00	CDB
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	5/25/17 17:00	CDB
Barium by ICP-OES 200.7	53.2	10.0	ppb	5/25/17 10:39	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	5/25/17 10:39	CDB
Boron - EPA 200.7	Less than	1000	ppb	5/25/17 10:39	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/25/17 17:00	CDB
Calcium EPA 200.7	677	100	ppb	5/25/17 10:39	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	5/25/17 17:00	CDB
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	5/25/17 17:00	CDB
Lead by ICP-MS 200.8	1.11	1.0	ppb	5/25/17 17:00	CDB
Lithium (CWA) 200.7	Less than	2.0	ppb	5/25/17 10:39	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/30/17 15:56	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	5/30/17 14:33	CDB
Selenium by ICP-MS 200.8	Less than	5.0	ppb	5/25/17 17:00	CDB
Thallium by ICP-MS 200.8	Less than	1.0	ppb	5/25/17 17:00	CDB

Approved By:
--------------



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB27186

Wateree Well MW 8 TM (NPDES/CCR)

Date & Time Sampled: May 22, 2017
Date & Time Submitted: May 23, 2017

May 22, 2017 16:05 May 23, 2017 15:55

Collected by: A.HILL Location Code: WAG08TM

MW 8 Login Record File: 170524001

			-		
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	5/25/17 17:00	CDB
Arsenic by ICP_MS 200.8	7.6	1.0	ppb	5/25/17 17:00	CDB
Barium by ICP-OES 200.7	136	10.0	ppb	5/30/17 08:56	CDB
Beryllium EPA 200.7	3.6	2.0	ppb	5/30/17 08:56	CDB
Boron - EPA 200.7	Less than	1000	ppb	5/30/17 08:56	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/25/17 17:00	CDB
Calcium EPA 200.7	23290	1000	ppb	5/30/17 08:56	CDB
Chromium by ICP_MS 200.8	1.01	1.0	ppb	5/25/17 17:00	CDB
Cobalt by ICP_MS 200.8	19.8	1.0	ppb	5/25/17 17:00	CDB
Lead by ICP-MS 200.8	Less than	1.0	ppb	5/25/17 17:00	CDB
Lithium (CWA) 200.7	12.3	2.0	ppb	5/30/17 08:56	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/30/17 15:56	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	5/30/17 14:33	CDB
Selenium by ICP-MS 200.8	31.9	5.0	ppb	5/25/17 17:00	CDB
Thallium by ICP-MS 200.8	Less than	1.0	ppb	5/25/17 17:00	CDB

Approved By:
--------------



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB27187

Wateree Well AP1-05 TM (NPDES/CCR)

Date & Time Sampled: May 22, 2017 17:15

Date & Time Submitted: May 23, 2017 15:55

Collected by: A.HILL Location Code: WAAP105TM

AP1-05 Login Record File: 170524001

		•		
Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Less than	1.0	ppb	5/25/17 17:00	CDB
1.4	1.0	ppb	5/25/17 17:00	CDB
199	10.0	ppb	5/30/17 08:56	CDB
Less than	2.0	ppb	5/30/17 08:56	CDB
Less than	1000	ppb	5/30/17 08:56	CDB
Less than	1.0	ppb	5/25/17 17:00	CDB
12200	1000	ppb	5/30/17 08:56	CDB
1.01	1.0	ppb	5/25/17 17:00	CDB
Less than	1.0	ppb	5/25/17 17:00	CDB
Less than	1.0	ppb	5/25/17 17:00	CDB
Less than	2.0	ppb	5/30/17 08:56	CDB
Less than	0.2	ppb	5/30/17 15:56	PRC
Less than	1.0	ppb	5/30/17 14:33	CDB
Less than	5.0	ppb	5/25/17 17:00	CDB
Less than	1.0	ppb	5/25/17 17:00	CDB
	Less than  1.4  199  Less than  Less than  12200  1.01  Less than  Less than	Result         Limit(MRL)           Less than         1.0           1.4         1.0           199         10.0           Less than         2.0           Less than         1000           Less than         1.0           12200         1000           1.01         1.0           Less than         1.0           Less than         2.0           Less than         0.2           Less than         1.0           Less than         5.0	Result         Limit(MRL)         Units           Less than         1.0         ppb           1.4         1.0         ppb           199         10.0         ppb           Less than         2.0         ppb           Less than         1000         ppb           12200         1000         ppb           1.01         1.0         ppb           Less than         1.0         ppb           Less than         1.0         ppb           Less than         2.0         ppb           Less than         0.2         ppb           Less than         1.0         ppb           Less than         5.0         ppb	Result         Limit(MRL)         Units         Date & Time           Less than         1.0         ppb         5/25/17         17:00           1.4         1.0         ppb         5/25/17         17:00           199         10.0         ppb         5/30/17         08:56           Less than         2.0         ppb         5/30/17         08:56           Less than         1.00         ppb         5/30/17         08:56           Less than         1.0         ppb         5/25/17         17:00           12200         1000         ppb         5/25/17         17:00           Less than         1.0         ppb         5/25/17         17:00           Less than         1.0         ppb         5/25/17         17:00           Less than         2.0         ppb         5/30/17         08:56           Less than         0.2         ppb         5/30/17         15:56           Less than         1.0         ppb         5/30/17         15:56           Less than         1.0         ppb         5/30/17         14:33           Less than         5.0         ppb         5/25/17         17:00



Tel: (803)217-9384 Fax: (803) 217-9911

08:00

15:55

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB27188

Wateree Well AP1-04 TM (NPDES/CCR)

Date & Time Sampled: May 23, 2017
Date & Time Submitted: May 23, 2017

Collected by: A.HILL Location Code: WAAP104TM

AP1-04 Login Record File: 170524001

7 H 1 V 1				1100 <u>2</u> 1001	
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	5/25/17 17:00	CDB
Arsenic by ICP_MS 200.8	66.8	1.0	ppb	5/25/17 17:00	CDB
Barium by ICP-OES 200.7	234	10.0	ppb	5/30/17 08:56	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	5/30/17 08:56	CDB
Boron - EPA 200.7	1481	1000	ppb	5/30/17 08:56	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/25/17 17:00	CDB
Calcium EPA 200.7	94790	1000	ppb	5/30/17 08:56	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	5/25/17 17:00	CDB
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	5/25/17 17:00	CDB
Lead by ICP-MS 200.8	Less than	1.0	ppb	5/25/17 17:00	CDB
Lithium (CWA) 200.7	Less than	2.0	ppb	5/30/17 08:56	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/30/17 15:56	PRC
Molybdenum - EPA 200.8	Less than	1.0	ppb	5/30/17 14:33	CDB
Selenium by ICP-MS 200.8	Less than	5.0	ppb	5/25/17 17:00	CDB
Thallium by ICP-MS 200.8	Less than	1.0	ppb	5/25/17 17:00	CDB

Approved By:
--------------



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB27231

Wateree Well AP1-01 TM (NPDES/CCR)

Date & Time Sampled: May 23, 2017 15:15

Date & Time Submitted: May 24, 2017 09:11

Collected by: S.SANSBURY Location Code: WAAP101TM

AP1-01 Login Record File: 170524005

			-		
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	5/25/17 17:20	CDB
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	5/25/17 17:20	CDB
Barium by ICP-OES 200.7	236	10.0	ppb	5/25/17 16:28	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	5/25/17 16:28	CDB
Boron - EPA 200.7	1422	1000	ppb	5/25/17 16:28	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/25/17 17:20	CDB
Calcium EPA 200.7	57180	1000	ppb	5/25/17 16:28	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	5/25/17 17:20	CDB
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	5/25/17 17:20	CDB
Lead by ICP-MS 200.8	Less than	1.0	ppb	5/25/17 17:20	CDB
Lithium (CWA) 200.7	Less than	2.0	ppb	5/25/17 16:28	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/30/17 15:56	PRC
Molybdenum - EPA 200.8	4.4	1.0	ppb	5/30/17 14:35	CDB
Selenium by ICP-MS 200.8	Less than	5.0	ppb	5/25/17 17:20	CDB
Thallium by ICP-MS 200.8	Less than	1.0	ppb	5/25/17 17:20	CDB

Approved By:	·



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB27232

Wateree Well AP1-02 TM (NPDES/CCR)

Date & Time Sampled: May 23, 2017 16:55

Date & Time Submitted: May 24, 2017 09:11

Collected by: S.SANSBURY Location Code: WAAP102TM

AP1-02 Login Record File: 170524005

			-		
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	5/26/17 14:29	CDB
Arsenic by ICP_MS 200.8	39.4	1.0	ppb	5/26/17 14:29	CDB
Barium by ICP-OES 200.7	184	10.0	ppb	5/25/17 16:28	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	5/25/17 16:28	CDB
Boron - EPA 200.7	Less than	1000	ppb	5/25/17 16:28	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/26/17 14:29	CDB
Calcium EPA 200.7	53230	1000	ppb	5/25/17 16:28	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	5/26/17 14:29	CDB
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	5/26/17 14:29	CDB
Lead by ICP-MS 200.8	Less than	1.0	ppb	5/26/17 14:29	CDB
Lithium (CWA) 200.7	8.6	2.0	ppb	5/25/17 16:28	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	5/30/17 15:56	PRC
Molybdenum - EPA 200.8	5.2	1.0	ppb	5/30/17 14:35	CDB
Selenium by ICP-MS 200.8	Less than	5.0	ppb	5/26/17 14:29	CDB
Thallium by ICP-MS 200.8	Less than	1.0	ppb	5/26/17 14:29	CDB

Approved By	:			
Approved By	:			



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB27233

Wateree Well AP1-03 TM (NPDES/CCR)

Date & Time Sampled: May 23, 2017 18:50

Date & Time Submitted: May 24, 2017 09:11

Collected by: S.SANSBURY Location Code: WAAP103TM

AP1-03 Login Record File: 170524005

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	5/26/17 14:29	CDB
Arsenic by ICP_MS 200.8	1809	25.0	ppb	5/31/17 15:43	CDB
Barium by ICP-OES 200.7	182	10.0	ppb	5/25/17 16:14	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	5/25/17 16:14	CDB
Boron - EPA 200.7	1035	1000	ppb	5/25/17 16:14	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	5/26/17 14:29	CDB
Calcium EPA 200.7	79390	1000	ppb	5/25/17 16:14	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	5/26/17 14:29	CDB
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	5/26/17 14:29	CDB
Lead by ICP-MS 200.8	Less than	1.0	ppb	5/26/17 14:29	CDB
Lithium (CWA) 200.7	90.1	2.0	ppb	5/25/17 16:14	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	6/2/17 15:56	PRC
Molybdenum - EPA 200.8	19.6	1.0	ppb	5/30/17 14:35	CDB
Selenium by ICP-MS 200.8	Less than	5.0	ppb	5/26/17 14:29	CDB
Thallium by ICP-MS 200.8	Less than	1.0	ppb	5/26/17 14:29	CDB

Facility: Wateree Station		Permi	t No.:	County: Richland
Date Sampled: 07/06/2017		_	Time Sampled:	12:00:00PM
year-month-day (N	umerical)			
			STATION NUMBERS	
PARAMETER NUMBER	MW-AP-05	MW-AP-08		
NAME Lab. Certificate No.	32006	32006		
Field pH S.U.	5.990	5.580		
Field Sp. Conductivity micromhos/cm	448.000	511.000		
Field Turbidity NTU	8.10	6.90		
ORP mV	-18.900	8.600		
Oxygen, dissolved mg/L	0.560	0.640		
Temp (Celcius) degrees C	19.220	19.110		
Water level elevation ft	86.93	86.97		

Date:

Authorized Release By:

Facility: Wateree Station		Permit No.:	County: Richland
Date Sampled: 07/10/2017		Time Sampled:	12:00:00PM
year-month-day (N	umerical)		
		STATION NUMBERS	
PARAMETER NUMBER	MW-AP-01A		
NAME Lab. Certificate No.	32006		
Field pH S.U.	4.320		
Field Sp. Conductivity micromhos/cm	53.000		
Field Turbidity NTU	1.50		
ORP mV	225.400		
Oxygen, dissolved mg/L	3.640		
Temp (Celcius) degrees C	21.610		
Water level elevation ft	114.44		
Authorized Release By:		Date:	

Facility:	Wateree Station	Permit No.:	County: Richland
Date Sampled:	07/10/2017	Time Sampled:	12:00:00PM
	year-month-day (Numerical)		
		CTATION NUMBERS	

#### STATION NUMBERS

PARAMETER	NUMBER	MW-AP-01	MW-AP-02	MW-AP-03	MW-AP-04
NAME	Lab. Certificate No.	32006	32006	32006	32006
Field pH S.U.		6.250	5.990	6.100	6.260
Field Sp. Conductivity	micromhos/cm	782.000	595.000	657.000	807.000
Field Turbidity NTU		6.82	2.97	4.32	6.23
ORP mV		-73.600	-59.300	-70.500	-89.700
Oxygen, dissolved mg/	L	0.330	0.620	0.250	0.300
Temp (Celcius) degrees	s C	23.370	25.440	22.480	24.080
Water level elevation ft	į	89.23	87.41	87.71	87.17

Authorized Release By:	Date:	

Facility:	Wateree Station		Permi	t No.:	County: Richland
Date Sampled:	07/24/2017		_	Time Sampled:	12:00:00PM
	year-month-day (N	umerical)			
				STATION NUMBERS	
PARAMETE	R NUMBER	MW-AP-01A	MW-FGD-01		
NAME	Lab. Certificate No.	32006	32006		
Field pH S.U.			4.470		
Field Sp. Conduct	ivity micromhos/cm		66.000		
Field Turbidity N	ГИ		4.70		
ORP mV			316.600		
Oxygen, dissolved	l mg/L		3.480		
Temp (Celcius) de	egrees C		17.320		
Water level elevat	ion ft	114.87	116.15		
		·	· · · · · · · · · · · · · · · · · · ·		

Date:

Authorized Release By:

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

# Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC Client SDG: 427697 GEL Work Order: 427697

#### 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.

	Jother Cottes
Reviewed by	

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

**Certificate of Analysis** 

Report Date: July 26, 2017

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: MW-01A Project: SCEG01716c Sample ID: 427697001 Client ID: GEEL003

Matrix: Ground Water
Collect Date: 10-JUL-17 09:15
Receive Date: 12-JUL-17
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograp	phy											
EPA300.0 Fluorio	de in Liquid "As Re	eceived"										
Fluoride	J	0.0398	0.033	0.100	mg/L		1	MXL2	07/17/17	1757	1682878	1
Metals Analysis-l	CP-MS											
200.8/200.2 NPI	DES Metals "As Red	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	07/14/17	1834	1681837	2
Rad Gas Flow Pro	oportional Counting	9										
GFPC, Ra228, Li	quid "As Received"	'										
Radium-228		1.85	1.27	3.00	pCi/L			JXC9	07/19/17	1301	1682124	3
Rad Radium-226												
Lucas Cell, Ra22	6, liquid "As Receiv	ved"										
Radium-226	•	1.63	0.274	1.00	pCi/L			MXH8	07/19/17	0830	1682145	4
The following Pro	ep Methods were pe	erformed:										
Method	Description	n		Analyst	Date	-	Гimе	e Pr	ep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		SXW1	07/13/17	(	0714	16	81836			
			_									

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

EPA 903.1 Modified

Surrogate/Tracer Recovery Test Result Nominal Recovery% Acceptable Limits

Barium-133 Tracer GFPC, Ra228, Liquid "As Received"

104 (15%-125%)

#### **Notes:**

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

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

**Certificate of Analysis** 

Project:

Client ID:

Report Date: July 26, 2017

SCEG01716c

GEEL003

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: AP1-01 Sample ID: 427697002 Matrix: Ground Water Collect Date: 10-JUL-17 10:55

Receive Date: 12-JUL-17 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analys	st Date	Time	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in	Liquid "As Re	eceived"										
Fluoride	•	0.340	0.033	0.100	mg/L		1	MXL2	07/17/17	1923	1682878	1
Metals Analysis-ICP-N	MS											
200.8/200.2 NPDES N	Metals "As Red	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	07/14/17	1853	1681837	2
Rad Gas Flow Proport	ional Counting	3										
GFPC, Ra228, Liquid	"As Received"	'										
Radium-228	U	ND	1.07	3.00	pCi/L			JXC9	07/19/17	1301	1682124	3
Rad Radium-226												
Lucas Cell, Ra226, liq	uid "As Recei	ved"										
Radium-226		2.36	0.290	1.00	pCi/L			MXH8	07/19/17	0830	1682145	4
The following Prep M	ethods were pe	erformed:										
Method	Description	1		Analyst	Date	-	Гіте	Pre	p Batch			
EPA 200.2	ICP-MS 200.	2 PREP		SXW1	07/13/17	(	)714	168	1836			

The following Analytical Methods were performed:

Method Description Analyst Comments

EPA 300.0

EPA 200.8 SC\_NPDES
 EPA 904.0/SW846 9320 Modified

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

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

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

**Certificate of Analysis** 

Project:

Client ID:

Report Date: July 26, 2017

SCEG01716c

GEEL003

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: AP1-02
Sample ID: 427697003
Matrix: Ground Water
Collect Date: 10-JUL-17 12:30

Receive Date: 12-JUL-17 Collector: Client

D	0 1.6.	D 14	DI	DI	TT	DE	DE	A 1	D	Т'	D ( 1	M. d 1
Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Anaiy	st Date	1 1me	Batch	Method
Ion Chromatography												
EPA300.0 Fluoride in I	Liquid "As Re	ceived"										
Fluoride		0.199	0.033	0.100	mg/L		1	MXL2	07/17/17	1952	1682878	1
Metals Analysis-ICP-M	IS											
200.8/200.2 NPDES M	letals "As Red	ceived"										
Lithium	J	6.46	2.00	10.0	ug/L	1.00	1	BAJ	07/14/17	1906	1681837	2
Rad Gas Flow Proportion	onal Counting	5										
GFPC, Ra228, Liquid "	As Received'	'										
Radium-228	U	ND	0.968	3.00	pCi/L			JXC9	07/19/17	1301	1682124	3
Rad Radium-226												
Lucas Cell, Ra226, liqu	id "As Receiv	ved"										
Radium-226		0.943	0.476	1.00	pCi/L			MXH8	07/19/17	0830	1682145	4
The following Prep Me	thods were pe	erformed:										
Method	Description	1		Analyst	Date		Time	Pr	ep Batch			
EPA 200.2	ICP-MS 200.2	2 PREP		SXW1	07/13/17		0714	16	81836			

#### The following Analytical Methods were performed:

MethodDescriptionAnalyst Comments1EPA 300.02EPA 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 (15%-125%)

#### **Notes:**

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

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

**Certificate of Analysis** 

Project:

Client ID:

Report Date: July 26, 2017

SCEG01716c

GEEL003

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: AP1-03
Sample ID: 427697004
Matrix: Ground Water
Collect Date: 10-JUL-17 14:20

Receive Date: 12-JUL-17 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograp	phy											
EPA300.0 Fluorio	de in Liquid "As Re	eceived"										
Fluoride	•	0.518	0.033	0.100	mg/L		1	MXL2	07/17/17	2021	1682878	1
Metals Analysis-l	ICP-MS											
200.8/200.2 NPI	DES Metals "As Rec	ceived"										
Lithium		61.6	2.00	10.0	ug/L	1.00	1	BAJ	07/14/17	1909	1681837	2
Rad Gas Flow Pro	oportional Counting	g										
GFPC, Ra228, Li	quid "As Received"	"										
Radium-228	U	ND	1.44	3.00	pCi/L			JXC9	07/19/17	1301	1682124	3
Rad Radium-226												
Lucas Cell, Ra22	6, liquid "As Recei	ved"										
Radium-226	•	1.98	0.426	1.00	pCi/L			MXH8	07/19/17	0830	1682145	4
The following Pro	ep Methods were pe	erformed:										
Method	Description	n		Analyst	Date	ı	Time	e Pr	ep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		SXW1	07/13/17		0714	168	81836			

The following Analytical Methods were performed:

Method Description Analyst Comments

EPA 300.0

2 EPA 200.8 SC\_NPDES

3 EPA 904.0/SW846 9320 Modified

EPA 903.1 Modified

Surrogate/Tracer Recovery Test Result Nominal Recovery% Acceptable Limits

Barium-133 Tracer GFPC, Ra228, Liquid "As Received"

84.8 (15%-125%)

#### **Notes:**

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

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

**Certificate of Analysis** 

Project:

Units

Result

Nominal

Recovery%

90.2

Acceptable Limits

(15%-125%)

Client ID:

PF

Report Date: July 26, 2017

DF Analyst Date Time Batch Method

SCEG01716c

GEEL003

Company: Address:

GEL Engineering, LLC 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: AP1-04

Sample ID:

427697005

Matrix: Collect Date: Ground Water

Receive Date:

10-JUL-17 16:20 12-JUL-17

Result

Collector:

Parameter

Client

Qualifier

Ion Chromatograp	hy										
EPA300.0 Fluorid	e in Liquid "As Rece	eived"									
Fluoride	•	0.188	0.033	0.100	mg/L	1	MXL2	07/17/17	2050	1682878	1
Metals Analysis-Io	CP-MS										
200.8/200.2 NPD	ES Metals "As Recei	ved"									
Lithium	U	ND	2.00	10.0	ug/L	1.00 1	BAJ	07/14/17	1919	1681837	2
Rad Gas Flow Pro	portional Counting										
GFPC, Ra228, Lic	quid "As Received"										
Radium-228	U	ND	1.52	3.00	pCi/L		JXC9	07/19/17	1301	1682124	3
Rad Radium-226											
Lucas Cell, Ra226	, liquid "As Received	d"									
Radium-226	•	1.88	0.277	1.00	pCi/L		MXH8	07/19/17	0830	1682145	4
The following Pre	p Methods were perf	formed:									
Method	Description			Analyst	Date	Tim	e Pr	ep Batch			
EPA 200.2	ICP-MS 200.2 P	REP		SXW1	07/13/17	0714	16	81836			
The following An	alytical Methods we	re performed:									
Method	Description				A	nalyst Co	mment	S			
1	EPA 300.0										
2	EPA 200.8 SC_N	IPDES									
3	EPA 904.0/SW84	46 9320 Modified									
4	EPA 903.1 Modi	fied									

DL

RL

#### **Notes:**

Barium-133 Tracer

Column headers are defined as follows:

Surrogate/Tracer Recovery

DF: Dilution Factor Lc/LC: Critical Level DL: Detection Limit PF: Prep Factor MDA: Minimum Detectable Activity **RL**: Reporting Limit

Test

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

GFPC, Ra228, Liquid "As Received"

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

**QC Summary** 

Report Date: July 26, 2017

Page 1 of 4

GEL Engineering, LLC 2040 Savage Rd

Charleston, South Carolina

**Contact:** Robert Gardner

Workorder: 427697

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range Anlst	Date Time
Ion Chromatography									
Batch 1682878									
QC1203832289 427697001 Dt Fluoride	UP J	0.0398	J	0.0386	mg/L	3.06 ^		(+/-0.100) MXL2	07/17/17 18:25
QC1203832288 LCS Fluoride	2.50			2.36	mg/L		94.2	(90%-110%)	07/17/17 17:28
QC1203832287 MB Fluoride			U	ND	mg/L				07/17/17 16:59
QC1203832290 427697001 PS Fluoride	S 2.50 J	0.0398		2.40	mg/L		94.4	(90%-110%)	07/17/17 18:54
Metals Analysis - ICPMS Batch 1681837									
QC1203829734 427697001 DI Lithium	UP U	ND	U	ND	ug/L	N/A		BAJ	07/14/17 18:38
QC1203829735 427697002 DI Lithium	UP U	ND	U	ND	ug/L	N/A			07/14/17 18:57
QC1203829733 LCS Lithium	50.0			51.0	ug/L		102	(80%-120%)	07/14/17 18:31
QC1203829732 MB Lithium			U	ND	ug/L				07/14/17 18:28
QC1203829736 427697001 M Lithium	50.0 U	ND		52.1	ug/L		101	(75%-125%)	07/14/17 18:41
QC1203829737 427697002 M Lithium	50.0 U	ND		46.7	ug/L		93.1	(75%-125%)	07/14/17 19:00

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

## **QC Summary**

				<b>2</b> υ	umma	<u>. y</u>				
Workorder: 427697										Page 2 of 4
Parmname	NO	M	Sample	Qual	QC	Units	RPD%	REC%	Range Anlst	Date Time
Metals Analysis - ICPMS Batch 1681837										
QC1203829738 427697001 S Lithium	SDILT	U	ND	U	ND	ug/L	N/A		(0%-10%) BAJ	07/14/17 18:44
QC1203829739 427697002 S Lithium	SDILT	U	ND	U	ND	ug/L	N/A		(0%-10%)	07/14/17 19:03
Rad Gas Flow Batch 1682124										
QC1203830399 427818004 I Radium-228	DUP	U	0.486	U	0.715	pCi/L	N/A		N/A JXC9	07/19/17 13:07
QC1203830402 LCS Radium-228	20.0				18.9	pCi/L		94.4	(75%-125%)	07/19/17 13:07
QC1203830398 MB Radium-228				U	-0.157	pCi/L				07/19/17 13:07
QC1203830400 427818004 I Radium-228	MS 60.0	U	0.486		52.6	pCi/L		87.7	(75%-125%)	07/19/17 13:07
QC1203830401 427818004 I Radium-228	MSD 60.0	U	0.486		59.9	pCi/L	12.9	99.7	(0%-20%)	07/19/17 13:07
<b>Rad Ra-226</b> Batch 1682145										
QC1203830453 427818006 1 Radium-226	DUP		0.837		0.585	pCi/L	35.5		(0% - 100%) MXH8	07/19/17 09:35
QC1203830456 LCS Radium-226	26.0				23.3	pCi/L		89.6	(75%-125%)	07/19/17 09:35
QC1203830452 MB Radium-226				U	0.104	pCi/L				07/19/17 09:35

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

## **QC Summary**

Workorder: 427697 Page 3 of 4 **Parmname NOM** Sample Qual QC Units RPD% REC% Range Anlst Date Time Rad Ra-226 1682145 Batch OC1203830454 427818006 MS 0.837 119 90.8 Radium-226 130 pCi/L (75%-125%) MXH8 07/19/17 09:35 QC1203830455 427818006 MSD 130 0.837 105 pCi/L 80.6 07/20/17 04:15 Radium-226 11.9 (0%-20%)

#### **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

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

## **QC Summary**

427697 Page 4 of 4 Parmname **NOM** Sample Qual QC Units RPD% REC% Range Anlst Date Time

UJ Gamma Spectroscopy--Uncertain identification

Workorder:

- 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.
- ٨ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
- 5-day BOD--The 2:1 depletion requirement was not met for this sample d
- 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 e 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.

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

# Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC Client SDG: 427698 GEL Work Order: 427698

#### 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.

	Jother Cottes
Reviewed by	

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

**Certificate of Analysis** 

Project:

Client ID:

Report Date: July 26, 2017

SCEG01716c

GEEL003

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: FB-01
Sample ID: 427698001
Matrix: Ground Water

Collect Date: 06-JUL-17 15:50
Receive Date: 12-JUL-17
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograph	ıy											
EPA300.0 Fluoride	in Liquid "As Re	eceived"										
Fluoride	U	ND	0.033	0.100	mg/L		1	MXL2	07/17/17	2119	1682878	1
Metals Analysis-IC	P-MS											
200.8/200.2 NPDE	ES Metals "As Red	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	07/14/17	1922	1681837	2
Rad Gas Flow Prop	ortional Counting	g										
GFPC, Ra228, Liqu	uid "As Received"	"										
Radium-228	U	ND	1.48	3.00	pCi/L			JXC9	07/19/17	1301	1682124	3
Rad Radium-226												
Lucas Cell, Ra226,	liquid "As Receiv	ved"										
Radium-226	•	0.636	0.212	1.00	pCi/L			MXH8	07/19/17	0830	1682145	4
The following Prep	Methods were pe	erformed:										
Method	Description	n		Analyst	Date	7	Γime	Pro	ep Batch			
EPA 200.2	ICP-MS 200.	2 PREP		SXW1	07/13/17	(	)714	168	81836			
The following Ana	alytical Methods v	were perform	ed:									

The following Analytical Methods were performed:

 Method
 Description
 Analyst Comments

 1
 EPA 300.0

 2
 EPA 200.8 SC\_NPDES

2 EPA 200.8 SC\_NPDES 3 EPA 904.0/SW846 9320 Modified

EPA 903.1 Modified

Surrogate/Tracer Recovery Test Result Nominal Recovery% Acceptable Limits

Barium-133 Tracer GFPC, Ra228, Liquid "As Received"

94.2 (15%-125%)

**Notes:** 

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

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

**Certificate of Analysis** 

Project:

Client ID:

Report Date: July 26, 2017

SCEG01716c

GEEL003

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: MW-8
Sample ID: 427698002
Matrix: Ground Water
Collect Date: 06-JUL-17 16:30

Receive Date: 12-JUL-17 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograp	hy											
EPA300.0 Fluorid	e in Liquid "As Re	ceived"										
Fluoride	•	0.304	0.033	0.100	mg/L		1	MXL2	07/17/17	2246	1682878	1
Metals Analysis-IO	CP-MS											
200.8/200.2 NPD	ES Metals "As Rec	ceived"										
Lithium		10.3	2.00	10.0	ug/L	1.00	1	BAJ	07/14/17	1925	1681837	2
Rad Gas Flow Pro	portional Counting	7										
GFPC, Ra228, Liq	uid "As Received"	'										
Radium-228	U	ND	1.26	3.00	pCi/L			JXC9	07/19/17	1301	1682124	3
Rad Radium-226												
Lucas Cell, Ra226	, liquid "As Receiv	ved"										
Radium-226	•	17.6	0.396	1.00	pCi/L			MXH8	07/19/17	0830	1682145	4
The following Pre	p Methods were pe	erformed:										
Method	Description	า		Analyst	Date	7	Гітє	Pr	ep Batch			
EPA 200.2	ICP-MS 200.2	2 PREP		SXW1	07/13/17	C	)714	168	81836			
Tris Calla Sura Au	.1		. 1.									

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

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

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

**Certificate of Analysis** 

Report Date: July 26, 2017

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: MW-99 Project: SCEG01716c Sample ID: 427698003 Client ID: GEEL003

Matrix: Ground Water
Collect Date: 06-JUL-17 16:40
Receive Date: 12-JUL-17
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograp	ohy											
EPA300.0 Fluorio	de in Liquid "As Re	eceived"										
Fluoride	•	0.304	0.033	0.100	mg/L		1	MXL2	07/17/17	2315	1682878	1
Metals Analysis-I	CP-MS											
200.8/200.2 NPD	DES Metals "As Red	ceived"										
Lithium		11.0	2.00	10.0	ug/L	1.00	1	BAJ	07/14/17	1928	1681837	2
Rad Gas Flow Pro	oportional Counting	g										
GFPC, Ra228, Li	quid "As Received'	"										
Radium-228	•	1.79	1.54	3.00	pCi/L			JXC9	07/19/17	1302	1682124	3
Rad Radium-226												
Lucas Cell, Ra220	6, liquid "As Receiv	ved"										
Radium-226	-	1.74	0.352	1.00	pCi/L			MXH8	07/19/17	0830	1682145	4
The following Pre	ep Methods were pe	erformed:										
Method	Description	n		Analyst	Date	7	Γim	e Pr	ep Batch			
EPA 200.2	ICP-MS 200.2	2 PREP		SXW1	07/13/17	(	0714	16	81836			
FD1 6 11	1 2 136 1 1	c	1									

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 RecoveryTestResultNominalRecovery%Acceptable LimitsBarium-133 TracerGFPC, Ra228, Liquid "As Received"98.6(15%-125%)

**Notes:** 

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

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

**Certificate of Analysis** 

Project:

Client ID:

Report Date: July 26, 2017

SCEG01716c

GEEL003

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: AP1-05
Sample ID: 427698004
Matrix: Ground Water

Collect Date: 06-JUL-17 17:50
Receive Date: 12-JUL-17
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograp	phy											
EPA300.0 Fluorio	de in Liquid "As Re	ceived"										
Fluoride	J	0.0835	0.033	0.100	mg/L		1	MXL2	07/17/17	2344	1682878	1
Metals Analysis-I	ICP-MS											
200.8/200.2 NPD	DES Metals "As Red	ceived"										
Lithium	U	ND	2.00	10.0	ug/L	1.00	1	BAJ	07/14/17	1932	1681837	2
Rad Gas Flow Pro	oportional Counting	5										
GFPC, Ra228, Lie	quid "As Received'	'										
Radium-228	U	ND	1.08	3.00	pCi/L			JXC9	07/19/17	1302	1682124	3
Rad Radium-226												
Lucas Cell, Ra220	6, liquid "As Receiv	ved"										
Radium-226	•	1.03	0.416	1.00	pCi/L			MXH8	07/19/17	0905	1682145	4
The following Pre	ep Methods were pe	erformed:										
Method	Description	1		Analyst	Date	-	Γim	e Pr	ep Batch			
EPA 200.2	ICP-MS 200.2	2 PREP		SXW1	07/13/17	(	0714	16	81836			
FD1 C 11 ' A	1 13 6 .1 .1	c	1									

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

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

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

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

**QC Summary** 

Report Date: July 26, 2017

Page 1 of 4

GEL Engineering, LLC 2040 Savage Rd

**Charleston, South Carolina** 

**Contact:** Robert Gardner

Workorder: 427698

Parmname		NOM		Sample	Qual	QC	Units	RPD%	REC%	Range Anlst	Date Time
<b>Ion Chromatography</b> Batch 1682878											
QC1203832289 4276970 Fluoride	01 DUP		J	0.0398	J	0.0386	mg/L	3.06	^	(+/-0.100) MXL2	07/17/17 18:25
QC1203832288 LCS Fluoride		2.50				2.36	mg/L		94.2	(90%-110%)	07/17/17 17:28
QC1203832287 MB Fluoride					U	ND	mg/L				07/17/17 16:59
QC1203832290 4276970 Fluoride	01 PS	2.50	J	0.0398		2.40	mg/L		94.4	(90%-110%)	07/17/17 18:54
Metals Analysis - ICPMS Batch 1681837											
QC1203829734 4276970 Lithium	01 DUP		U	ND	U	ND	ug/L	N/A		BAJ	07/14/17 18:38
QC1203829735 4276970 Lithium	02 DUP		U	ND	U	ND	ug/L	N/A			07/14/17 18:57
QC1203829733 LCS Lithium		50.0				51.0	ug/L		102	(80%-120%)	07/14/17 18:31
QC1203829732 MB Lithium					U	ND	ug/L				07/14/17 18:28
QC1203829736 4276970 Lithium	01 MS	50.0	U	ND		52.1	ug/L		101	(75%-125%)	07/14/17 18:41
QC1203829737 4276970 Lithium	02 MS	50.0	U	ND		46.7	ug/L		93.1	(75%-125%)	07/14/17 19:00

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

## **QC Summary**

			<u>`</u>	<u> </u>	umma	<u>. y</u>				
Workorder: 427698										Page 2 of 4
Parmname	NO	OM	Sample	Qual	QC	Units	RPD%	REC%	Range Anlst	Date Time
Metals Analysis - ICPMS Batch 1681837										
QC1203829738 427697001 Lithium	SDILT	U	ND	U	ND	ug/L	N/A		(0%-10%) BAJ	07/14/17 18:44
QC1203829739 427697002 Lithium	SDILT	U	ND	U	ND	ug/L	N/A		(0%-10%)	07/14/17 19:03
Rad Gas Flow Batch 1682124										
QC1203830399 427818004 Radium-228	DUP	U	0.486	U	0.715	pCi/L	N/A		N/A JXC9	07/19/17 13:07
QC1203830402 LCS Radium-228	20.0	)			18.9	pCi/L		94.4	(75%-125%)	07/19/17 13:07
QC1203830398 MB Radium-228				U	-0.157	pCi/L				07/19/17 13:07
QC1203830400 427818004 Radium-228	MS 60.0	) U	0.486		52.6	pCi/L		87.7	(75%-125%)	07/19/17 13:07
QC1203830401 427818004 Radium-228	MSD 60.0	) U	0.486		59.9	pCi/L	12.9	99.7	(0%-20%)	07/19/17 13:07
<b>Rad Ra-226</b> Batch 1682145										
QC1203830453 427818006 Radium-226	DUP		0.837		0.585	pCi/L	35.5		(0% - 100%) MXH8	07/19/17 09:35
QC1203830456 LCS Radium-226	26.0	)			23.3	pCi/L		89.6	(75%-125%)	07/19/17 09:35
QC1203830452 MB Radium-226				U	0.104	pCi/L				07/19/17 09:35

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

## **QC Summary**

427698 Workorder: Page 3 of 4 Sample Qual **Parmname NOM** QC Units RPD% REC% Range Anlst Date Time Rad Ra-226 1682145 Batch OC1203830454 427818006 MS 0.837 119 90.8 Radium-226 130 pCi/L (75%-125%) MXH8 07/19/17 09:35 QC1203830455 427818006 MSD 130 0.837 105 pCi/L 80.6 07/20/17 04:15 Radium-226 11.9 (0%-20%)

#### **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 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

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

## **QC Summary**

Workorder: 427698

Page 4 of 4

Parmname

NOM Sample Qual QC Units RPD% REC% Range Anlst Date Time

- 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.

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

# Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC Client SDG: 428960 GEL Work Order: 428960

#### 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.

	Jahreno Cottes		
Reviewed by			

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

**Certificate of Analysis** 

Project:

Units

Client ID:

PF

Report Date: August 22, 2017

DF Analyst Date Time Batch Method

SCEG01716c

91.5

(15%-125%)

GEEL003

Company: Address:

GEL Engineering, LLC

2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: FGD-01

Sample ID:

428960001

Matrix: Collect Date: Ground Water

Receive Date:

24-JUL-17 14:10 27-JUL-17

Result

Collector:

Parameter

Client

Qualifier

Ion Chromatography								
EPA300.0 Fluoride in	Liquid "As Received"							
Fluoride	J 0.0358	0.033	0.100	mg/L	1	MXL2 07/29/17	7 0505 1686433	1
Metals Analysis-ICP-	-MS							
200.8/200.2 NPDES	Metals "As Received"							
Lithium	J 2.13	2.00	10.0	ug/L	1.00 1	SKJ 08/15/17	7 1910 1686139	2
Rad Gas Flow Propor	tional Counting							
GFPC, Ra228, Liquid	l "As Received"							
Radium-228	U ND	1.88	3.00	pCi/L		JXC9 08/21/17	7 1207 1692834	3
Rad Radium-226								
Lucas Cell, Ra226, lie	quid "As Received"							
Radium-226	1.36	0.255	1.00	pCi/L		MXH8 08/15/17	7 0745 1686420	4
The following Prep M	Methods were performed:							
Method	Description		Analyst	Date	Time	e Prep Batc	h	
EPA 200.2	ICP-MS 200.2 PREP		JXM8	07/27/17	7 1702	1686136		
The following Analy	tical Methods were performed:							
Method	Description				Analyst Cor	nments		
1	EPA 300.0							
2	EPA 200.8 SC_NPDES							
3	EPA 904.0/SW846 9320 Modified							
4	EPA 903.1 Modified							
Surrogate/Tracer Rec	overy Test			Result	Nominal	Recovery%	Acceptable Lim	its

DL

RL

#### **Notes:**

Barium-133 Tracer

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

GFPC, Ra228, Liquid "As Received"

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

**QC Summary** 

Report Date: August 22, 2017

Page 1 of 4

GEL Engineering, LLC 2040 Savage Rd

Charleston, South Carolina

**Contact:** Robert Gardner

Workorder: 428960

Parmname		NOM		Sample	Qual	QC	Units	RPD%	REC%	Range Anlst	Date Time
Ion Chromatography Batch 1686433											
QC1203840942 428957001 1 Fluoride	DUP		J	0.038	J	0.038	mg/L	0 /	Λ.	(+/-0.100) MXL2	07/28/17 21:52
QC1203840943 428960008 1 Fluoride	DUP		J	0.0406	J	0.041	mg/L	0.98 ′		(+/-0.100)	07/29/17 09:54
QC1203840941 LCS Fluoride		2.50				2.35	mg/L		93.9	(90%-110%)	07/28/17 20:54
QC1203840940 MB Fluoride					U	ND	mg/L				07/28/17 20:25
QC1203840944 428957001 l Fluoride	PS	2.50	J	0.038		2.33	mg/L		91.6	(90%-110%)	07/28/17 22:20
QC1203840945 428960008 1 Fluoride	PS	2.50	J	0.0406		2.34	mg/L		92.1	(90%-110%)	07/29/17 10:23
Metals Analysis - ICPMS Batch 1686139											
QC1203840299 428960001 Lithium	DUP		J	2.13	J	2.13	ug/L	0.235	Λ.	(+/-10.0) SKJ	08/15/17 19:14
QC1203840298 LCS Lithium		50.0				51.1	ug/L		102	(80%-120%)	08/15/17 19:06
QC1203840297 MB Lithium					U	ND	ug/L				08/15/17 19:03
QC1203840300 428960001 Lithium	MS	50.0	J	2.13		53.0	ug/L		102	(75%-125%)	08/15/17 19:18

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

## **QC Summary**

Workorder: 428960 Page 2 of 4 QC **Parmname** NOM Sample Qual Units RPD% REC% Range Anlst Date Time Metals Analysis - ICPMS 1686139 Batch QC1203840301 428960001 SDILT 2.13 U ND Lithium ug/L N/A (0%-10%)SKJ 08/15/17 19:22 Rad Gas Flow 1692834 Batch QC1203856709 428957008 DUP 4.94 U 1.31 Radium-228 pCi/L 116\* (0% - 100%) JXC9 08/21/17 12:08 QC1203856710 LCS Radium-228 19.8 21.6 pCi/L 109 (75% - 125%)08/21/17 12:08 QC1203856708 MB Radium-228 U 1.31 pCi/L 08/21/17 12:08 Rad Ra-226 1686420 Batch QC1203840913 428957008 DUP 1.31 Radium-226 1.32 pCi/L 0.412 (0% - 100%) MXH8 08/15/17 08:15 QC1203840915 LCS Radium-226 26.0 95.7 24.8 pCi/L (75% - 125%)08/15/17 08:45 QC1203840912 MB U 0.0314 08/15/17 08:15 Radium-226 pCi/L QC1203840914 428957008 MS Radium-226 130 1.31 124 pCi/L 94.3 (75% - 125%)08/15/17 08:15

#### **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.

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

## **QC Summary**

Workorder: 428960 Page 3 of 4 Parmname NOM Sample Qual  $\mathbf{OC}$ Units RPD% REC% Range Anlst Date Time BD Results are either below the MDC or tracer recovery is low Е % difference of sample and SD is >10%. Sample concentration must meet flagging criteria Е General Chemistry--Concentration of the target analyte exceeds the instrument calibration range FA Failed analysis. FΒ 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 Η Analytical holding time was exceeded T 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 if above MDC and less than LLD M 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 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

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

## **QC Summary**

Page 4 of 4 -Parmname NOM Sample Qual  $\mathbf{QC}$ Units RPD% REC% Range Anlst Date Time

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.

Workorder:

428960

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.

<sup>^</sup> 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.

<sup>\*</sup> Indicates that a Quality Control parameter was not within specifications.



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB27749

Wateree Well MW 8 (NPDES/CCR)

Date & Time Sampled: July 06, 2017 16:30
Date & Time Submitted: July 07, 2017 08:05

Collected by: A.HILL Location Code: WAG08TDS

MW 8 Login Record File: 170707002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	18.45	1.0	mg/L	7/13/17 11:28	ВВ
pH by SM4500HB(2011)	6.11	0.00	S.U.	7/10/17 09:14	BF
Holding Time of 15 minutes has been	exceeded.				
Sulfates by IC EPA 300.0	105	1.0	mg/L	7/13/17 11:28	ВВ
Total Dissolved Solid-SM2540C	347	2.0	mg/L	7/11/17 13:20	BF

Approved By:		
AUDIOVED DV.		



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB27751

Wateree Well AP1-05 (NPDES/CCR)

Date & Time Sampled: July 06, 2017 17:50

Date & Time Submitted: July 07, 2017 08:05

Collected by: A.HILL Location Code: WAAP105TDS

AP1-05 Login Record File: 170707002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist	
Chlorides by IC EPA 300.0	19.74	0.50	mg/L	7/13/17 11:28	ВВ	
pH by SM4500HB(2011)	6.28	0.00	S.U.	7/10/17 09:14	BF	
Holding Time of 15 minutes has been exceeded.						
Sulfates by IC EPA 300.0	11.32	0.50	mg/L	7/13/17 11:28	ВВ	
Total Dissolved Solid-SM2540C	246	2.0	mg/L	7/11/17 13:20	BF	

Approved By:		
AUDIOVED DV.		



Mike Moore

## Central Laboratory (P-08) 2102 North Lake Drive Columbia, SC 29212

Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

REPORT TO:

Sample ID: AB27797

Wateree NPDES Well MW 1 (NPDES)

Date & Time Sampled: July 10, 2017 09:15
Date & Time Submitted: July 11, 2017 09:54

Collected by: S.SANSBURY Location Code: WAG01TDS

MW 1 Login Record File: 170711003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist	
Chlorides by IC EPA 300.0	5.37	0.50	mg/L	7/12/17 16:17	ВВ	
pH by SM4500HB(2011)	4.73	0.00	S.U.	7/11/17 10:33	BF	
Holding Time of 15 minutes has been exceeded.						
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	7/12/17 16:17	ВВ	
Total Dissolved Solid-SM2540C	33	2.0	mg/L	7/12/17 16:10	BF	

Approved By:		
AUDIOVED DV.		



Tel: (803)217-9384 Fax: (803) 217-9911

REPORT TO:

Mike Moore

January 31, 2018

Sample ID: AB27798

Wateree Well AP1-01 (NPDES/CCR)

Date & Time Sampled: July 10, 2017 10:55
Date & Time Submitted: July 11, 2017 09:54

Collected by: S.SANSBURY Location Code: WAAP101TDS

AP1-01 Login Record File: 170711003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	187	1.0	mg/L	7/12/17 16:17	ВВ
pH by SM4500HB(2011)  Holding Time of 15 minutes has been ea	6.58	0.00	S.U.	7/11/17 10:33	BF
riolaling fillie of 15 milliates has been e.	xceeded.				
Sulfates by IC EPA 300.0	5.52	1.0	mg/L	7/12/17 16:17	ВВ
Total Dissolved Solid-SM2540C	442	2.0	mg/L	7/12/17 16:10	BF



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

REPORT TO:

Mike Moore

Sample ID: AB27799

Wateree Well AP1-02 (NPDES/CCR)

Date & Time Sampled: July 10, 2017 12:30
Date & Time Submitted: July 11, 2017 09:54

Collected by: S.SANSBURY Location Code: WAAP102TDS

AP1-02 Login Record File: 170711003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	57.76	1.0	mg/L	7/12/17 16:17	ВВ
pH by SM4500HB(2011)  Holding Time of 15 minutes has been e	6.32 exceeded.	0.00	S.U.	7/11/17 10:33	BF
Sulfates by IC EPA 300.0	8.60	1.0	mg/L	7/12/17 16:17	BB
Total Dissolved Solid-SM2540C	313	2.0	mg/L	7/12/17 16:10	BF

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

REPORT TO:

Mike Moore

Sample ID: AB27800

January 31, 2018

Wateree Well AP1-03 (NPDES/CCR)

Date & Time Sampled: July 10, 2017 14:20
Date & Time Submitted: July 11, 2017 09:54

Collected by: S.SANSBURY Location Code: WAAP103TDS

AP1-03 Login Record File: 170711003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist		
Chlorides by IC EPA 300.0	57.07	1.0	mg/L	7/12/17 16:17	ВВ		
pH by SM4500HB(2011)	6.54	0.00	S.U.	7/11/17 10:33	BF		
Holding Time of 15 minutes has been exceeded.							
Sulfates by IC EPA 300.0	58.29	1.0	mg/L	7/12/17 16:17	ВВ		
Total Dissolved Solid-SM2540C	391	2.0	mg/L	7/12/17 16:10	BF		

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB27801

Wateree Well AP1-04 (NPDES/CCR)

Date & Time Sampled: July 10, 2017 16:20
Date & Time Submitted: July 11, 2017 09:54

Collected by: S.SANSBURY Location Code: WAAP104TDS

AP1-04 Login Record File: 170711003

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist	
Chlorides by IC EPA 300.0	11.66	0.50	mg/L	7/12/17 16:17	ВВ	
pH by SM4500HB(2011)	6.51	0.00	S.U.	7/11/17 10:33	BF	
Holding Time of 15 minutes has been exceeded.						
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	7/12/17 16:17	BB	
Total Dissolved Solid-SM2540C	446	2.0	mg/L	7/12/17 16:10	BF	



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB27945

Wateree Well FGD-01 (NPDES/CCR)

Date & Time Sampled: July 24, 2017 14:10

Date & Time Submitted: July 26, 2017 12:38

Collected by: A.HILL Location Code: WAFGD01TDS

FGD-01 Login Record File: 170726002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	5.84	0.50	mg/L	7/27/17 13:37	ВВ
pH by SM4500HB(2011)	4.86	0.00	S.U.	7/31/17 11:53	PRC
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	7/27/17 13:37	BB
Total Dissolved Solid-SM2540C	22	2.0	mg/L	7/28/17 12:10	BF



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB27753

Wateree Well MW 8 TM (NPDES/CCR)

Date & Time Sampled:
Date & Time Submitted:

July 06, 2017 16:30

July 07, 2017 08:05

Collected by: A.HILL Location Code: WAG08TM

MW 8 Login Record File: 170707002

Result	Reporting	Units	Completed Analysis	a
	Limit(MRL)	Units	Date & Time	Chemist
Less than	1.0	ppb	7/13/17 13:48	CDB
4.6	1.0	ppb	7/13/17 13:48	CDB
145	10.0	ppb	7/13/17 10:10	CDB
2.6	2.0	ppb	7/13/17 10:10	CDB
Less than	1000	ppb	7/13/17 10:10	CDB
Less than	1.0	ppb	7/13/17 13:48	CDB
21700	1000	ppb	7/13/17 10:10	CDB
1.5	1.0	ppb	7/13/17 13:48	CDB
14.9	1.0	ppb	7/13/17 13:48	CDB
Less than	1.0	ppb	7/13/17 13:48	CDB
9.4	2.0	ppb	7/13/17 10:10	CDB
Less than	0.2	ppb	7/10/17 14:30	PRC
Less than	1.0	ppb	7/13/17 13:48	CDB
11.4	5.0	ppb	7/13/17 13:48	CDB
Less than	1.0	ppb	7/13/17 13:48	CDB
	4.6  145  2.6  Less than  Less than  21700  1.5  14.9  Less than  9.4  Less than  Less than  11.4	4.6       1.0         145       10.0         2.6       2.0         Less than       1000         Less than       1.0         21700       1000         1.5       1.0         14.9       1.0         Less than       1.0         Less than       0.2         Less than       1.0         11.4       5.0	4.6 1.0 ppb  145 10.0 ppb  2.6 2.0 ppb  Less than 1000 ppb  Less than 1.0 ppb  21700 1000 ppb  1.5 1.0 ppb  14.9 1.0 ppb  Less than 1.0 ppb  Less than 0.2 ppb  Less than 0.2 ppb  Less than 1.0 ppb  Less than 1.0 ppb	4.6 1.0 ppb 7/13/17 13:48  145 10.0 ppb 7/13/17 10:10  2.6 2.0 ppb 7/13/17 10:10  Less than 1000 ppb 7/13/17 10:10  Less than 1.0 ppb 7/13/17 13:48  21700 1000 ppb 7/13/17 10:10  1.5 1.0 ppb 7/13/17 13:48  14.9 1.0 ppb 7/13/17 13:48  Less than 1.0 ppb 7/13/17 13:48  Less than 0.2 ppb 7/13/17 10:10  Less than 0.2 ppb 7/13/17 13:48  Less than 0.2 ppb 7/13/17 13:48  11.4 5.0 ppb 7/13/17 13:48



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore C221

Sample ID: AB27755

Wateree Well AP1-05 TM (NPDES/CCR)

Date & Time Sampled:

July 06, 2017 17:50 July 07, 2017 08:05

Date & Time Submitted: Collected by: A.HILL

Location Code: WAAP105TM

AP1-05 Login Record File: 170707002

Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Less than	1.0	ppb	7/13/17 13:48	CDB
Less than	1.0	ppb	7/13/17 13:48	CDB
197	10.0	ppb	7/13/17 10:10	CDB
Less than	2.0	ppb	7/13/17 10:10	CDB
Less than	1000	ppb	7/13/17 10:10	CDB
Less than	1.0	ppb	7/13/17 13:48	CDB
11620	1000	ppb	7/13/17 10:10	CDB
1.4	1.0	ppb	7/13/17 13:48	CDB
Less than	1.0	ppb	7/13/17 13:48	CDB
Less than	1.0	ppb	7/13/17 13:48	CDB
Less than	2.0	ppb	7/13/17 10:10	CDB
Less than	0.2	ppb	7/10/17 14:30	PRC
Less than	1.0	ppb	7/13/17 13:48	CDB
Less than	5.0	ppb	7/13/17 13:48	CDB
Less than	1.0	ppb	7/13/17 13:48	CDB
	Less than  197  Less than  Less than  Less than  11620  1.4  Less than  Less than	Result         Limit(MRL)           Less than         1.0           Less than         1.0           197         10.0           Less than         2.0           Less than         1000           Less than         1.0           11620         1000           1.4         1.0           Less than         1.0           Less than         2.0           Less than         0.2           Less than         1.0           Less than         5.0	Result         Limit(MRL)         Units           Less than         1.0         ppb           Less than         1.0         ppb           197         10.0         ppb           Less than         2.0         ppb           Less than         1000         ppb           Less than         1.0         ppb           1.4         1.0         ppb           Less than         1.0         ppb           Less than         1.0         ppb           Less than         2.0         ppb           Less than         0.2         ppb           Less than         1.0         ppb           Less than         5.0         ppb	Result         Limit(MRL)         Units         Date & Time           Less than         1.0         ppb         7/13/17         13:48           Less than         1.0         ppb         7/13/17         13:48           197         10.0         ppb         7/13/17         10:10           Less than         2.0         ppb         7/13/17         10:10           Less than         1000         ppb         7/13/17         13:48           11620         1000         ppb         7/13/17         10:10           1.4         1.0         ppb         7/13/17         13:48           Less than         1.0         ppb         7/13/17         13:48           Less than         2.0         ppb         7/13/17         10:10           Less than         0.2         ppb         7/13/17         10:10           Less than         0.2         ppb         7/13/17         13:48           Less than         1.0         ppb         7/13/17         13:48           Less than         5.0         ppb         7/13/17         13:48

Approved By:
--------------



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB27764

Wateree NPDES Well MW 1 Total Metals (NPDES)

Date & Time Sampled: July 10, 2017 09:15
Date & Time Submitted: July 11, 2017 09:54

Collected by: S.SANSBURY Location Code: WAG01TM

MW 1 Login Record File: 170711001

209.11.000.11.00.11.00.1					
Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist	
Less than	1.0	ppb	7/13/17 13:48	CDB	
Less than	2.0	ppb	7/13/17 13:48	CDB	
54.9	10.0	ppb	7/13/17 10:10	CDB	
Less than	2.0	ppb	7/13/17 10:10	CDB	
Less than	1000	ppb	7/13/17 10:10	CDB	
Less than	1.0	ppb	7/13/17 13:48	CDB	
700	100	ppb	7/13/17 10:10	CDB	
Less than	2.0	ppb	7/13/17 13:48	CDB	
Less than	2.0	ppb	7/13/17 13:48	CDB	
1.2	1.0	ppb	7/13/17 13:48	CDB	
Less than	2.0	ppb	7/13/17 10:10	CDB	
Less than	0.2	ppb	7/14/17 12:28	MC	
Less than	1.0	ppb	7/13/17 13:48	CDB	
Less than	10.0	ppb	7/13/17 13:48	CDB	
Less than	1.0	ppb	7/13/17 13:48	CDB	
	Less than  Less than  54.9  Less than  Less than  700  Less than  1.2  Less than  Less than	Result         Limit(MRL)           Less than         1.0           Less than         2.0           54.9         10.0           Less than         2.0           Less than         1000           Less than         1.0           Less than         2.0           Less than         2.0           Less than         2.0           Less than         2.0           Less than         0.2           Less than         1.0           Less than         1.0           Less than         1.0           Less than         1.0	Result         Limit(MRL)         Units           Less than         1.0         ppb           Less than         2.0         ppb           54.9         10.0         ppb           Less than         2.0         ppb           Less than         1.0         ppb           T00         100         ppb           Less than         2.0         ppb           Less than         1.0         ppb	Result         Limit(MRL)         Units         Date & Time           Less than         1.0         ppb         7/13/17         13:48           Less than         2.0         ppb         7/13/17         13:48           54.9         10.0         ppb         7/13/17         10:10           Less than         2.0         ppb         7/13/17         10:10           Less than         1.0         ppb         7/13/17         13:48           700         100         ppb         7/13/17         13:48           Less than         2.0         ppb         7/13/17         13:48           Less than         0.2         ppb         7/13/17         12:28           Less than         1.0         ppb         7/13/17         13:48           Less than         1.0         ppb         7/13/17         13:48	

Approved By	:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB27765

Wateree Well AP1-01 TM (NPDES/CCR)

Date & Time Sampled: July 10, 2017 10:55
Date & Time Submitted: July 11, 2017 09:54

Collected by: S.SANSBURY Location Code: WAAP101TM

AP1-01 Login Record File: 170711001

/ II	20gm (00014 m). 1707 (1001					
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	7/13/17 13:48	CDB	
Arsenic by ICP_MS 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB	
Barium by ICP-OES 200.7	214	10.0	ppb	7/13/17 10:10	CDB	
Beryllium EPA 200.7	Less than	2.0	ppb	7/13/17 10:10	CDB	
Boron - EPA 200.7	1340	1000	ppb	7/13/17 10:10	CDB	
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB	
Calcium EPA 200.7	52450	1000	ppb	7/13/17 10:10	CDB	
Chromium by ICP_MS 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB	
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB	
Lead by ICP-MS 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB	
Lithium (CWA) 200.7	Less than	2.0	ppb	7/13/17 10:10	CDB	
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	7/14/17 12:28	MC	
Molybdenum - EPA 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB	
Selenium by ICP-MS 200.8	Less than	5.0	ppb	7/13/17 13:48	CDB	
Thallium by ICP-MS 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB	



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB27766

Wateree Well AP1-02 TM (NPDES/CCR)

Date & Time Sampled: July 10, 2017 12:30
Date & Time Submitted: July 11, 2017 09:54

Collected by: S.SANSBURY Location Code: WAAP102TM

AP1-02 Login Record File: 170711001

/ u · V=					
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	7/13/17 13:48	CDB
Arsenic by ICP_MS 200.8	48.7	1.0	ppb	7/13/17 13:48	CDB
Barium by ICP-OES 200.7	185	10.0	ppb	7/13/17 10:10	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	7/13/17 10:10	CDB
Boron - EPA 200.7	Less than	1000	ppb	7/13/17 10:10	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB
Calcium EPA 200.7	40300	1000	ppb	7/13/17 10:10	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB
Lead by ICP-MS 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB
Lithium (CWA) 200.7	5.4	2.0	ppb	7/13/17 10:10	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	7/14/17 12:28	MC
Molybdenum - EPA 200.8	7.2	1.0	ppb	7/13/17 13:48	CDB
Selenium by ICP-MS 200.8	Less than	5.0	ppb	7/13/17 13:48	CDB
Thallium by ICP-MS 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB

Approved By	<b>/</b> :		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB27767

Wateree Well AP1-03 TM (NPDES/CCR)

Date & Time Sampled: July 10, 2017 14:20
Date & Time Submitted: July 11, 2017 09:54

Collected by: S.SANSBURY Location Code: WAAP103TM

AP1-03 Login Record File: 170711001

74 1 00 Eog. 1 100 1707 1100					
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	7/13/17 13:48	CDB
Arsenic by ICP_MS 200.8	1160	10.0	ppb	7/13/17 13:48	CDB
Barium by ICP-OES 200.7	175	10.0	ppb	7/13/17 10:10	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	7/13/17 10:10	CDB
Boron - EPA 200.7	Less than	1000	ppb	7/13/17 10:10	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB
Calcium EPA 200.7	67660	1000	ppb	7/13/17 10:10	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB
Lead by ICP-MS 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB
Lithium (CWA) 200.7	53.6	2.0	ppb	7/13/17 10:10	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	7/14/17 12:28	MC
Molybdenum - EPA 200.8	12.1	1.0	ppb	7/13/17 13:48	CDB
Selenium by ICP-MS 200.8	Less than	5.0	ppb	7/13/17 13:48	CDB
Thallium by ICP-MS 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB

Approved By	<b>v</b> :		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB27768

Wateree Well AP1-04 TM (NPDES/CCR)

Date & Time Sampled: July 10, 2017 16:20

Date & Time Submitted: July 11, 2017 09:54

Collected by: S.SANSBURY Location Code: WAAP104TM

AP1-04 Login Record File: 170711001

711 1 🗸 1					
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	7/13/17 13:48	CDB
Arsenic by ICP_MS 200.8	69.1	1.0	ppb	7/13/17 13:48	CDB
Barium by ICP-OES 200.7	218	10.0	ppb	7/13/17 10:10	CDB
Beryllium EPA 200.7	Less than	2.0	ppb	7/13/17 10:10	CDB
Boron - EPA 200.7	1583	1000	ppb	7/13/17 10:10	CDB
Cadmium by ICP_MS EPA 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB
Calcium EPA 200.7	93820	1000	ppb	7/13/17 10:10	CDB
Chromium by ICP_MS 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB
Cobalt by ICP_MS 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB
Lead by ICP-MS 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB
Lithium (CWA) 200.7	Less than	2.0	ppb	7/13/17 10:10	CDB
Mercury (CWA) by EPA 245.2	Less than	0.2	ppb	7/14/17 12:28	MC
Molybdenum - EPA 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB
Selenium by ICP-MS 200.8	Less than	5.0	ppb	7/13/17 13:48	CDB
Thallium by ICP-MS 200.8	Less than	1.0	ppb	7/13/17 13:48	CDB

Approved By	<b>v</b> :		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB27965

Wateree Well FGD-01 TM (NPDES/CCR)

Date & Time Sampled: July 24, 2017 14:10

Date & Time Submitted: July 26, 2017 12:38

Collected by: A.HILL Location Code: WAFGD01TM

FGD-01 Login Record File: 170726003

1 0 D 0 1					
Result	Reporting Limit(MRL)	Units		•	Chemist
Less than	1.0	ppb	8/2/17	12:39	CDB
Less than	1.0	ppb	8/2/17	12:39	CDB
78.2	10.0	ppb	7/31/17	13:57	CDB
Less than	2.0	ppb	7/31/17	13:57	CDB
Less than	1000	ppb	7/31/17	13:57	CDB
Less than	1.0	ppb	8/2/17	12:39	CDB
1909	1000	ppb	7/31/17	13:57	CDB
1.2	1.0	ppb	8/2/17	12:39	CDB
1.1	1.0	ppb	8/2/17	12:39	CDB
1.2	1.0	ppb	8/2/17	12:39	CDB
2.4	2.0	ppb	7/31/17	13:57	CDB
Less than	0.2	ppb	8/1/17	14:16	MC
Less than	1.0	ppb	8/2/17	12:39	CDB
Less than	5.0	ppb	8/2/17	12:39	CDB
Less than	1.0	ppb	8/2/17	12:39	CDB
	Less than  78.2  Less than  Less than  Less than  1909  1.2  1.1  1.2  2.4  Less than  Less than  Less than  Less than	Result         Limit(MRL)           Less than         1.0           T8.2         10.0           Less than         2.0           Less than         1000           Less than         1.0           1909         1000           1.2         1.0           1.1         1.0           1.2         1.0           Less than         0.2           Less than         1.0           Less than         5.0	Result         Limit(MRL)         Units           Less than         1.0         ppb           Less than         1.0         ppb           78.2         10.0         ppb           Less than         2.0         ppb           Less than         1.0         ppb           1909         1000         ppb           1.2         1.0         ppb           1.1         1.0         ppb           1.2         1.0         ppb           2.4         2.0         ppb           Less than         0.2         ppb           Less than         1.0         ppb           Less than         5.0         ppb	Result         Limit(MRL)         Units         Date & Ti           Less than         1.0         ppb         8/2/17           Less than         1.0         ppb         8/2/17           78.2         10.0         ppb         7/31/17           Less than         2.0         ppb         7/31/17           Less than         1.00         ppb         8/2/17           1909         1000         ppb         8/2/17           1.2         1.0         ppb         8/2/17           1.1         1.0         ppb         8/2/17           1.2         1.0         ppb         8/2/17           2.4         2.0         ppb         7/31/17           Less than         0.2         ppb         8/1/17           Less than         1.0         ppb         8/2/17           Less than         5.0         ppb         8/2/17	Result         Limit(MRL)         Units         Date & Time           Less than         1.0         ppb         8/2/17         12:39           Less than         1.0         ppb         8/2/17         12:39           78.2         10.0         ppb         7/31/17         13:57           Less than         2.0         ppb         7/31/17         13:57           Less than         1.00         ppb         8/2/17         12:39           1909         1000         ppb         7/31/17         13:57           1.2         1.0         ppb         8/2/17         12:39           1.1         1.0         ppb         8/2/17         12:39           1.2         1.0         ppb         8/2/17         12:39           2.4         2.0         ppb         7/31/17         13:57           Less than         0.2         ppb         8/2/17         12:39           Less than         1.0         ppb         8/2/17         12:39           Less than         1.0         ppb         8/2/17         12:39

Approved By: _	

#### SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL GROUND-WATER MONITORING REPORT

Facility: Wateree Station		Permit No.:	County: Richland
Date Sampled: 09/26/2017	te Sampled: 09/26/2017		12:00:00AM
year-month-day (N	umerical)		
		STATION NUMBERS	
PARAMETER NUMBER	MW-AP-01A		
NAME Lab. Certificate No.	32006		
Field pH S.U.	4.550		
Field Sp. Conductivity micromhos/cm	40.000		
Field Turbidity NTU	5.10		
ORP mV	253.900		
Oxygen, dissolved mg/L	5.390		
Temp (Celcius) degrees C	21.530		
Water level elevation ft	114.05		
Authorized Release By:	,	Date:	

## SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL GROUND-WATER MONITORING REPORT

Facility: Wateree Station		Permit No.:	County: Richland		
Date Sampled: 09/27/2017		Time Sampled:	12:00:00AM		
year-month-day (N	umerical)				
		STATION NUMBERS			
PARAMETER NUMBER	MW-FGD-01				
NAME Lab. Certificate No.	32006				
Field pH S.U.	4.510				
Field Sp. Conductivity micromhos/cm	37.000				
Field Turbidity NTU	3.20				
ORP mV	312.600				
Oxygen, dissolved mg/L	3.580				
Temp (Celcius) degrees C	19.340				
Water level elevation ft	114.98				

Date:

Authorized Release By:

## SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL GROUND-WATER MONITORING REPORT

Facility: Wateree Station		Peri	nit No.:	County: Richland		
Date Sampled: 09/26/2017		<u> </u>		Time Sampled:	12:00:00AM	
year-month-day	(Numerical)					
			STATIO	N NUMBERS		
PARAMETER NUMBER	R MW-AP-01	MW-AP-02	MW-AP-03	MW-AP-04	MW-AP-05	MW-AP-08
NAME Lab. Certificate No.	32006	32006	32006	32006	32006	32006
Field pH S.U.	6.710	6.440	6.350	6.540	6.120	5.950
Field Sp. Conductivity micromhos/cm	784.000	645.000	627.000	675.000	430.000	483.000
Field Turbidity NTU	2.20	3.00	2.60	6.40	6.40	6.80
ORP mV	-122.000	-52.300	-63.900	-72.400	-60.900	-49.300
Oxygen, dissolved mg/L	0.810	86.000	0.770	0.640	0.720	0.710
Temp (Celcius) degrees C	21.900	18.590	18.540	18.550	17.630	19.370
Water level elevation ft	87.83	84.93	86.67	86.22	82.09	82.26

Date:

Authorized Release By:

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

# Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC Client SDG: 434131 GEL Work Order: 434131

#### 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.

	Jack N	Crosh			
Reviewed by	,				

A. . .

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

**Certificate of Analysis** 

Report Date: October 18, 2017

Company : Address :

GEL Engineering, LLC

: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID:

MW-08

Sample ID:

434131001

Matrix: Collect Date: Ground Water

Receive Date:

26-SEP-17 09:20

Receive Date Collector:

03-OCT-17 Client

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

Ion Chromatography

EPA300.0 Fluoride in Liquid "As Received"

Fluoride 0.306

orformed:

mg/L

0.100

Project:

Client ID:

SCEG01716c

1 JXH5 10/05/17 1224 1706773

GEEL003

The following Analytical Methods were performed:

Method Description Analyst Comments

EPA 300.0

0.033

#### **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

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: October 18, 2017

1

GEL Engineering, LLC Company: Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: MW-1A Sample ID: 434131002 Matrix: Ground Water Collect Date: 26-SEP-17 10:20

03-OCT-17 Receive Date: Collector: Client

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

Ion Chromatography

EPA300.0 Fluoride in Liquid "As Received"

Fluoride 0.033 0.100 mg/L 1 JXH5 10/05/17 1351 1706773

The following Analytical Methods were performed:

Method Description **Analyst Comments** 

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

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

**Certificate of Analysis** 

Report Date: October 18, 2017

Company:

GEL Engineering, LLC

Address:

2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: AP1-05

Sample ID:

434131003

Matrix: Collect Date: Ground Water

26-SEP-17 08:27

Receive Date: Collector:

03-OCT-17 Client

	esult DL RL	Units PF	DF Analyst Date Time Batch Method
--	-------------	----------	-----------------------------------

Ion Chromatography

EPA300.0 Fluoride in Liquid "As Received"

Fluoride

0.0757

0.033

0.100 mg/L

Project:

Client ID:

1 JXH5 10/05/17 1419 1706773

SCEG01716c

GEEL003

The following Analytical Methods were performed:

Method Description **Analyst Comments** 

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

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

**Certificate of Analysis** 

Project:

Client ID:

PF

**Analyst Comments** 

mg/L

SCEG01716c

GEEL003

DF Analyst Date

1 JXH5 10/05/17 1447 1706773

Report Date: October 18, 2017

Time Batch Method

1

Company:

GEL Engineering, LLC

Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: AP1-02

Sample ID:

434131004

Matrix:

Ground Water

Collect Date:

26-SEP-17 09:48

Receive Date: Collector:

03-OCT-17 Client

P	aramei	ter	
-	<b>~</b> 1		

Qualifier DL RL Units Result

0.033

0.100

Ion Chromatography

EPA300.0 Fluoride in Liquid "As Received"

Fluoride

The following Analytical Methods were performed:

Method Description

EPA 300.0

**Notes:** 

Column headers are defined as follows:

DF: Dilution Factor DL: Detection Limit Lc/LC: Critical Level PF: Prep Factor

MDA: Minimum Detectable Activity

**RL**: Reporting Limit

MDC: Minimum Detectable Concentration

SQL: Sample Quantitation Limit

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

**Certificate of Analysis** 

Report Date: October 18, 2017

Company:

GEL Engineering, LLC

Address:

2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: AP1-03

Sample ID:

434131005

Matrix:

Ground Water

Collect Date:

26-SEP-17 10:54

Receive Date: Collector:

03-OCT-17 Client

	esult DL RL	Units PF	DF Analyst Date Time Batch Method
--	-------------	----------	-----------------------------------

Ion Chromatography

EPA300.0 Fluoride in Liquid "As Received"

Fluoride

0.033

0.100

mg/L

Project:

Client ID:

1 JXH5 10/05/17 1516 1706773

SCEG01716c

GEEL003

The following Analytical Methods were performed:

Method Description **Analyst Comments** 

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

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: October 18, 2017

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner
Project: Wateree CCR

Client Sample ID: AP1-04 Sample ID: 434131006

Matrix: Ground Water
Collect Date: 26-SEP-17 12:00
Receive Date: 03-OCT-17
Collector: Client

Parameter Qualifier Result	DL RL	Units PF	DF Analyst Date Time Bat	ch Method
----------------------------	-------	----------	--------------------------	-----------

Ion Chromatography

EPA300.0 Fluoride in Liquid "As Received"

Fluoride 0.286 0.033 0.100 mg/L 1 JXH5 10/05/17 1545 1706773

The following Analytical Methods were performed:

Method Description Analyst Comments

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

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

**Certificate of Analysis** 

Project:

mg/L

Client ID:

SCEG01716c

1 JXH5 10/05/17 1712 1706773

GEEL003

Report Date: October 18, 2017

Company:

GEL Engineering, LLC

Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: AP1-01

Sample ID:

434131007

Matrix:

Ground Water

Collect Date:

26-SEP-17 13:04

Receive Date: Collector:

03-OCT-17 Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF Analyst Date	Time Batch Method	1
									_

Ion Chromatography

EPA300.0 Fluoride in Liquid "As Received"

Fluoride 0.364

0.033 0.100 The following Analytical Methods were performed:

Method Description **Analyst Comments** 

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

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

**Certificate of Analysis** 

Report Date: October 18, 2017

Company:

GEL Engineering, LLC

Address:

2040 Savage Rd

Charleston, South Carolina 29417

Contact: Project:

Robert Gardner Wateree CCR

Client Sample ID: AP1-99

Sample ID:

434131008

Matrix: Collect Date: Ground Water

Receive Date:

26-SEP-17 14:00

Collector:

03-OCT-17 Client

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

Ion Chromatography

EPA300.0 Fluoride in Liquid "As Received"

Fluoride 0.365

0.033 0.100 mg/L 1 JXH5 10/05/17 1741 1706773

Project:

Client ID:

SCEG01716c

GEEL003

The following Analytical Methods were performed:

Method Description **Analyst Comments** 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

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

## **QC Summary**

Report Date: October 18, 2017

Page 1 of 2

GEL Engineering, LLC

2040 Savage Rd

Charleston, South Carolina

**Contact:** Robert Gardner

Workorder: 434131

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography Batch 1706773											
QC1203889579 434134001 DUP Fluoride	U	ND	U	ND	mg/L	N/A			JXH5	10/05/	17 21:32
QC1203889683 434131001 DUP Fluoride		0.306		0.304	mg/L	0.557 ^		(+/-0.100	)	10/05/1	17 12:53
QC1203889577 LCS Fluoride	2.50			2.35	mg/L		93.9	(90%-110%)	)	10/05/1	17 11:55
QC1203889576 MB Fluoride			U	ND	mg/L					10/05/	17 11:26
QC1203889581 434134001 PS Fluoride	2.50 U	ND		2.53	mg/L		101	(90%-110%)	)	10/05/1	17 22:59
QC1203889684 434131001 PS Fluoride	2.50	0.306		2.56	mg/L		90.2	(90%-110%)	)	10/06/	17 10:41

#### 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
- $\ensuremath{N/A}$   $\ensuremath{\mbox{ RPD}}$  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.

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

## **QC Summary**

434131 Page 2 of 2 **Parmname NOM** Sample Qual  $\mathbf{QC}$ Units RPD% REC% Range Anlst Date Time

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

RL is used to evaluate the DUP result.

Workorder:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- 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
- 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 e 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

\* 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.

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

# Certificate of Analysis Report for

GEEL003 GEL Engineering, LLC Client SDG: 434133 GEL Work Order: 434133

#### 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
- 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.

	Jack N	Croh		
Reviewed by	,			

A. . .

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

**Certificate of Analysis** 

Project:

Client ID:

SCEG01716c

GEEL003

Report Date: October 18, 2017

Company: GEL Engineering, LLC Address: 2040 Savage Rd

Charleston, South Carolina 29417

Contact: Robert Gardner Project: Wateree CCR

Client Sample ID: FGD-01 Sample ID: 434133004 Matrix: Ground Water Collect Date: 27-SEP-17 14:15 Receive Date: 03-OCT-17

Receive Date: 03-OC Collector: Client

Tarameter Quantity Result DL RE Units 11 DI Analyst Date Time Baten Method	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 JXH5 10/05/17 1810 1706773

The following Analytical Methods were performed:

Method Description Analyst Comments

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

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

**QC Summary** 

Report Date: October 18, 2017

Page 1 of 2

GEL Engineering, LLC

2040 Savage Rd

Charleston, South Carolina

**Contact:** Robert Gardner

Workorder: 434133

Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography Batch 1706773										
QC1203889579 434134001 DUP Fluoride	U	ND U	ND	mg/L	N/A			JXH5	10/05/1	7 21:32
QC1203889683 434131001 DUP Fluoride		0.306	0.304	mg/L	0.557 ^		(+/-0.100)		10/05/1	7 12:53
QC1203889577 LCS Fluoride	2.50		2.35	mg/L		93.9	(90%-110%)		10/05/1	7 11:55
QC1203889576 MB Fluoride		U	ND	mg/L					10/05/1	7 11:26
QC1203889581 434134001 PS Fluoride	2.50 U	ND	2.53	mg/L		101	(90%-110%)		10/05/1	7 22:59
QC1203889684 434131001 PS Fluoride	2.50	0.306	2.56	mg/L		90.2	(90%-110%)		10/06/1	7 10:41

#### 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
- $\ensuremath{N/A}$   $\ensuremath{\mbox{ RPD}}$  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.

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

## **QC Summary**

Page 2 of 2 **Parmname** NOM Sample Qual QC Units RPD% REC% Range Anlst Date Time

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
	DUITDOSES

R Sample results are rejected

RL is used to evaluate the DUP result.

434133

Workorder:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- 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
- 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 e 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

\* 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.



**REPORT TO:** 

## Central Laboratory (P-08) 2102 North Lake Drive Columbia, SC 29212

Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

Mike Moore

Sample ID: AB28770

Wateree Well AP1-05 (NPDES/CCR)

Date & Time Sampled: September 26, 2017 08:27
Date & Time Submitted: September 27, 2017 10:34

Collected by: A.HILL Location Code: WAAP105TDS

AP1-05 Login Record File: 170927001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	19.5	0.50	mg/L	9/28/17 09:25	ВВ
pH by SM4500HB(2011)	6.28	0.00	S.U.	9/27/17 15:30	BF
Holding Time of 15 minutes has been ex	xceeded.				
Sulfates by IC EPA 300.0	1.35	0.50	mg/L	9/28/17 09:25	ВВ
Total Dissolved Solid-SM2540C	279	2.0	mg/L	9/28/17 15:14	BF



Tel: (803)217-9384 Fax: (803) 217-9911

09:20

10:34

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB28771

Wateree Well MW 8 (NPDES/CCR)

Date & Time Sampled: September 26, 2017
Date & Time Submitted: September 27, 2017

Collected by: A.HILL Location Code: WAG08TDS

MW 8 Login Record File: 170927001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	18.3	1.0	mg/L	9/28/17 09:25	ВВ
pH by SM4500HB(2011)	6.14	0.00	S.U.	9/27/17 15:30	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	93.0	1.0	mg/L	9/28/17 09:25	ВВ
Total Dissolved Solid-SM2540C	374	2.0	mg/L	9/28/17 15:14	BF

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB28772

Wateree Well AP1-02 (NPDES/CCR)

Date & Time Sampled: September 26, 2017 09:48
Date & Time Submitted: September 27, 2017 10:34

Collected by: A.HILL Location Code: WAAP102TDS

AP1-02 Login Record File: 170927001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	104	1.0	mg/L	9/28/17 09:25	ВВ
pH by SM4500HB(2011)	6.59	0.00	S.U.	9/27/17 15:30	BF
Holding Time of 15 minutes has been e	xceeded.				
Sulfates by IC EPA 300.0	41.4	1.0	mg/L	9/28/17 09:25	ВВ
Total Dissolved Solid-SM2540C	407	2.0	mg/L	9/28/17 15:14	BF



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB28773

Wateree NPDES Well MW 1 (NPDES)

Date & Time Sampled: September 26, 2017 10:20
Date & Time Submitted: September 27, 2017 10:34

Collected by: A.HILL Location Code: WAG01TDS

MW 1 Login Record File: 170927001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist	
Chlorides by IC EPA 300.0	4.97	0.50	mg/L	9/28/17 09:25	ВВ	
pH by SM4500HB(2011)	5.43	0.00	S.U.	9/27/17 15:30	BF	
Holding Time of 15 minutes has been exceeded.						
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	9/28/17 09:25	ВВ	
Total Dissolved Solid-SM2540C	27	2.0	mg/L	9/28/17 15:14	BF	



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB28774

Wateree Well AP1-03 (NPDES/CCR)

Date & Time Sampled: September 26, 2017 10:54
Date & Time Submitted: September 27, 2017 10:34

Collected by: A.HILL Location Code: WAAP103TDS

AP1-03 Login Record File: 170927001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	77.8	0.50	mg/L	9/28/17 09:25	ВВ
pH by SM4500HB(2011)	6.66	0.00	S.U.	9/27/17 15:30	BF
Holding Time of 15 minutes has been ex	xceeded.				
Sulfates by IC EPA 300.0	69.2	0.50	mg/L	9/28/17 09:25	ВВ
Total Dissolved Solid-SM2540C	402	2.0	mg/L	9/28/17 15:14	BF



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB28775

Wateree Well AP1-04 (NPDES/CCR)

Date & Time Sampled: September 26, 2017 12:00
Date & Time Submitted: September 27, 2017 10:34

Collected by: A.HILL Location Code: WAAP104TDS

AP1-04 Login Record File: 170927001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist	
Chlorides by IC EPA 300.0	15.8	0.50	mg/L	9/28/17 09:25	ВВ	
pH by SM4500HB(2011)	6.78	0.00	S.U.	9/27/17 15:30	BF	
Holding Time of 15 minutes has been exceeded.						
Sulfates by IC EPA 300.0	0.67	0.50	mg/L	9/28/17 09:25	ВВ	
Total Dissolved Solid-SM2540C	389	2.0	mg/L	9/28/17 15:14	BF	

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

\_\_\_\_\_ January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB28776

Wateree Well AP1-01 (NPDES/CCR)

Date & Time Sampled: September 26, 2017 13:04
Date & Time Submitted: September 27, 2017 10:34

Collected by: A.HILL Location Code: WAAP101TDS

AP1-01 Login Record File: 170927001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist	
Chlorides by IC EPA 300.0	195	1.5	mg/L	9/28/17 09:25	ВВ	
pH by SM4500HB(2011)	6.73	0.00	S.U.	9/27/17 15:30	BF	
Holding Time of 15 minutes has been exceeded.						
Sulfates by IC EPA 300.0	11.1	1.5	mg/L	9/28/17 09:25	ВВ	
Total Dissolved Solid-SM2540C	473	2.0	mg/L	9/28/17 15:14	BF	



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB28841

Wateree Well FGD-01 (NPDES/CCR)

Date & Time Sampled: September 27, 2017 14:15

Date & Time Submitted: September 28, 2017 11:17

Collected by: A.HILL Location Code: WAFGD01TDS

FGD-01 Login Record File: 170928002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Chlorides by IC EPA 300.0	5.88	0.50	mg/L	9/29/17 10:59	ВВ
pH by SM4500HB(2011)	4.89	0.00	S.U.	9/28/17 11:50	BF
Holding Time of 15 minutes has been exceeded.					
Sulfates by IC EPA 300.0	Less than	0.50	mg/L	9/29/17 10:59	ВВ
Total Dissolved Solid-SM2540C	29	2.0	mg/L	10/3/17 14:05	BF

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB28791

Wateree Well AP1-05 TM (NPDES/CCR)

Date & Time Sampled: September 26, 2017 08:27
Date & Time Submitted: September 27, 2017 10:34

Collected by: A.HILL Location Code: WAAP105TM

AP1-05 Login Record File: 170927001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Boron - EPA 200.7	Less than	1000	ppb	9/28/17 13:34	MC
Calcium EPA 200.7	12600	100	ppb	9/28/17 13:34	MC

Approved Bv:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB28792

Wateree Well MW 8 TM (NPDES/CCR)

Date & Time Sampled: September 26, 2017 09:20
Date & Time Submitted: September 27, 2017 10:34

Collected by: A.HILL Location Code: WAG08TM

MW 8 Login Record File: 170927001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Boron - EPA 200.7	Less than	1000	ppb	9/28/17 13:34	MC
Calcium EPA 200.7	20400	100	ppb	9/28/17 13:34	MC

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB28793

Wateree Well AP1-02 TM (NPDES/CCR)

Date & Time Sampled: September 26, 2017 09:48
Date & Time Submitted: September 27, 2017 10:34

Collected by: A.HILL Location Code: WAAP102TM

AP1-02 Login Record File: 170927001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Boron - EPA 200.7	1070	1000	ppb	9/28/17 13:34	MC
Calcium EPA 200.7	63000	100	ppb	9/28/17 13:34	MC

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB28794

Wateree NPDES Well MW 1 Total Metals (NPDES)

Date & Time Sampled: September 26, 2017 10:20
Date & Time Submitted: September 27, 2017 10:34

Collected by: A.HILL Location Code: WAG01TM

MW 1 Login Record File: 170927001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Boron - EPA 200.7	Less than	1000	ppb	9/28/17 13:34	MC
Calcium EPA 200.7	511	100	ppb	9/28/17 13:34	MC



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB28795

Wateree Well AP1-03 TM (NPDES/CCR)

Date & Time Sampled: September 26, 2017 10:54
Date & Time Submitted: September 27, 2017 10:34

Collected by: A.HILL Location Code: WAAP103TM

AP1-03 Login Record File: 170927001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Boron - EPA 200.7	1000	1000	ppb	9/28/17 13:34	MC
Calcium EPA 200.7	73900	100	ppb	9/28/17 13:34	MC

Approved Bv:		
ADDIOVED DV.		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB28796

Wateree Well AP1-04 TM (NPDES/CCR)

Date & Time Sampled: September 26, 2017 12:00
Date & Time Submitted: September 27, 2017 10:34

Collected by: A.HILL Location Code: WAAP104TM

AP1-04 Login Record File: 170927001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Boron - EPA 200.7	2290	1000	ppb	9/28/17 13:34	MC
Calcium EPA 200.7	98900	100	ppb	9/28/17 13:34	MC

Approved By:	



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB28797

Wateree Well AP1-01 TM (NPDES/CCR)

Date & Time Sampled: September 26, 2017 13:04 Date & Time Submitted: September 27, 2017 10:34

Collected by: A.HILL Location Code: WAAP101TM

AP1-01 Login Record File: 170927001

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Boron - EPA 200.7	1900	1000	ppb	9/28/17 13:34	MC
Calcium EPA 200.7	59700	100	ppb	9/28/17 13:34	MC

Approved By:		



Tel: (803)217-9384 Fax: (803) 217-9911

January 31, 2018

**REPORT TO:** 

Mike Moore

Sample ID: AB28859

Wateree Well FGD-01 TM (NPDES/CCR)

Date & Time Sampled: September 27, 2017 14:15

Date & Time Submitted: September 28, 2017 11:17

Collected by: A.HILL Location Code: WAFGD01TM

FGD-01 Login Record File: 170928002

CERTIFIED BY SCDHEC (LAB ID 32006):	Result	Reporting Limit(MRL)	Units	Completed Analysis Date & Time	Chemist
Boron - EPA 200.7	Less than	1000	ppb	10/2/17 16:00	CDB
Calcium EPA 200.7	638	100	ppb	10/2/17 16:00	CDB

Approved By:		



# **APPENDIX B**

Statistical Analysis of Detection Monitoring Groundwater Quality Results

## **Detection Monitoring Summary**

								Run Id:	1
Location Id:	MW-AP-01								
Compliance Test:	Double Quantification Rule								
<u>Parameter</u>	Sample Date	<u>Lab Id</u>	<u>Re</u> Testing	Upper Limit	Compliance Result	Exceedance	Possible SSI	Post-Hoc Trend	
Boron, total ug/L	07/10/2017	AB27765			1.340	y	<u>—</u>	Upward	
Boron, total ug/L	09/26/2017	AB28797			1.900	у		Upward	
								Run Id:	2
<b>Location Id:</b>	MW-AP-01								
Compliance Test:	Non-Parametric Prediction	Interval on Back	kground Useing largest back	ground data value.					
<u>Parameter</u>	Sample Date	<u>Lab Id</u>	<u>Re</u> Testing	Upper Limit	Compliance Result	Exceedance	Possible SSI	Post-Hoc Trend	
Calcium, tot ug/L	07/10/2017	AB27765	1 of 2	1.910	52.500	у	<u>551</u>	Upward	
Calcium, tot ug/L	09/26/2017	AB28797	1 of 2	1.910	59.700	у		Upward	
								Run Id:	3
<b>Location Id:</b>	MW-AP-01								
Compliance Test:	Parametric Prediction Inter	val on Backgrou	ınd						
<u>Parameter</u>	Sample Date	<u>Lab Id</u>	<u>Re</u> Testing	Upper Limit	Compliance Result	Exceedance	Possible SSI	<u>Post-Hoc</u> Trend	
Chlorides mg/L	07/10/2017	AB27798	1 of 2	7.669	187.000	у	<u>551</u>	Upward	
Chlorides mg/L	09/26/2017	AB28776	1 of 2	7.669	195.000	y		Upward	
								Run Id:	4

Location Id: MW-AP-01

## **Detection Monitoring Summary**

	IW-AP-01							Run Id:	4
	rw-Ar-01 Parametric Prediction Into	erval on Background							
-									
<u>Parameter</u>	Sample Date	<u>Lab Id</u>	<u>Re</u> <u>Testing</u>	<u>Upper Limit</u>	Compliance Result	Exceedance	Possible SSI	<u>Post-Hoc</u> <u>Trend</u>	
Field pH S.U.	07/10/2017	FLD20170710	1 of 2	5.270	6.250	y/n	<u></u>	<u></u>	
Field pH S.U.	09/26/2017	FLD20170926	1 of 2	5.270	6.710	y/n			
								Run Id:	5
Location Id: M	IW-AP-01								
<b>Compliance Test:</b>	Double Quantification Rul	le							
<u>Parameter</u>	Sample Date	Lab Id	<u>Re</u> Testing	Upper Limit	Compliance Result	<u>Exceedance</u>	Possible SSI	Post-Hoc Trend	
Fluoride, total mg/L	07/10/2017	427697002			0.340	y		None	
Fluoride, total mg/L	09/26/2017	434131007			0.364	у		None	
								Run Id:	6
	IW-AP-01								
Compliance Test:	Non-Parametric Prediction	n Interval on Backgro	und Useing largest ba	ckground data value.					
<u>Parameter</u>	Sample Date	<u>Lab Id</u>	<u>Re</u> Testing	Upper Limit	Compliance Result	Exceedance	Possible SSI	<u>Post-Hoc</u> Trend	
Sulfate, tot mg/L	07/10/2017	AB27798	1 of 2	0.830	5.520	у	_	None	
Sulfate, tot mg/L	09/26/2017	AB28776	1 of 2	0.830	11.100	у		None	
								Run Id:	7

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.

MW-AP-01

**Location Id:** 

## **Detection Monitoring Summary**

								Run Id:	7
Location Id: MW-AP-0									
Compliance Test: Parame	tric Prediction Inte	erval on Background							
<u>Parameter</u>	Sample Date	<u>Lab Id</u>	<u>Re</u> Testing	<u>Upper Limit</u>	Compliance Result	Exceedance	Possible SSI	Post-Hoc Trend	
Total Dissolved Solids mg/L	07/10/2017	AB27798	1 of 2	44.248	442.000	у		Upward	
Total Dissolved Solids mg/L	09/26/2017	AB28776	1 of 2	44.248	473.000	у		Upward	
								Run Id:	8
Location Id: MW-AP-0	)2								
Compliance Test: Double	Quantification Rul	e							
<u>Parameter</u>	Sample Date	<u>Lab Id</u>	Re Testing	Upper Limit	Compliance Result	Exceedance	Possible SSI	Post-Hoc Trend	
Boron, total ug/L	07/10/2017	AB27766	<u></u>		< 1.000	n	<u>551</u>		
Boron, total ug/L	09/26/2017	AB28793			1.070	n			
								Run Id:	9
Location Id: MW-AP-0	)2								
Compliance Test: Non-Par	rametric Prediction	n Interval on Background	Useing largest backgr	ound data value.					
<u>Parameter</u>	Sample Date	<u>Lab Id</u>	Re Testing	Upper Limit	Compliance Result	Exceedance	Possible SSI	Post-Hoc Trend	
Calcium, tot ug/L	07/10/2017	AB27766	1 of 2	1.910	40.300	у	<u>551</u>	None	
Calcium, tot ug/L	09/26/2017	AB28793	1 of 2	1.910	63.000	У		None	
								Run Id:	10

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.

MW-AP-02

**Location Id:** 

## **Detection Monitoring Summary**

									Run Id:	10
Location Id:	MW-AP-02		d Ddd							
Compliance Test:	Paramet	ric Prediction Inte	erval on Background							
<u>Parameter</u>		Sample Date	<u>Lab Id</u>	<u>Re</u> <u>Testing</u>	Upper Limit	Compliance Result	Exceedance	Possible SSI	Post-Hoc Trend	
Chlorides mg/L		07/10/2017	AB27799	1 of 2	7.669	57.760	y	_	None	
Chlorides mg/L		09/26/2017	AB28772	1 of 2	7.669	104.000	у		None	
									Run Id:	11
<b>Location Id:</b>	MW-AP-02	2								
Compliance Test:	Paramet	ric Prediction Inte	erval on Background							
<u>Parameter</u>		Sample Date	<u>Lab Id</u>	<u>Re</u> <u>Testing</u>	Upper Limit	Compliance Result	Exceedance	Possible SSI	Post-Hoc Trend	
Field pH S.U.		07/10/2017	FLD20170710	1 of 2	5.270	5.990	y/n	_		
Field pH S.U.		09/26/2017	FLD20170926	1 of 2	5.270	6.440	y/n			
									Run Id:	12
<b>Location Id:</b>	MW-AP-02	2								
Compliance Test:	Double (	Quantification Rul	e							
<u>Parameter</u>		Sample Date	<u>Lab Id</u>	<u>Re</u> Testing	<u>Upper Limit</u>	Compliance Result	Exceedance	Possible SSI	Post-Hoc Trend	
Fluoride, total mg/I		07/10/2017	427697003			0.199	у	<u></u>	None	
Fluoride, total mg/I		09/26/2017	434131004			0.334	у		None	
									Run Id:	13

Location Id: MW-AP-02

### **Detection Monitoring Summary**

Run Id: 13 **Location Id:** MW-AP-02 Non-Parametric Prediction Interval on Background Useing largest background data value. **Compliance Test:** <u>Parameter</u> Sample Date Lab Id Re Upper Limit Compliance Exceedance Possible Post-Hoc SSI Trend **Testing** Result Sulfate, tot mg/L 07/10/2017 1 of 2 0.830 AB27799 8.600 None y Sulfate, tot mg/L 09/26/2017 AB28772 1 of 2 0.830 41.400 None y Run Id: 14 **Location Id:** MW-AP-02 **Compliance Test:** Parametric Prediction Interval on Background Parameter Sample Date Lab Id Re Upper Limit Compliance Exceedance Possible Post-Hoc Testing Result SSI Trend Total Dissolved Solids mg/L 07/10/2017 AB27799 1 of 2 44.248 313.000 y None 1 of 2 None Total Dissolved Solids mg/L 09/26/2017 AB28772 44.248 407.000 У Run Id: 15 **Location Id:** MW-AP-03 **Double Quantification Rule Compliance Test:** Upper Limit <u>Parameter</u> Sample Date Lab Id Re Compliance Exceedance Possible Post-Hoc Result SSI Trend Testing Boron, total ug/L < 1.000 07/10/2017 AB27767 n Boron, total ug/L 09/26/2017 AB28795 1.000 n 16 Run Id:

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.

MW-AP-03

**Location Id:** 

### **Detection Monitoring Summary**

Run Id: 16 **Location Id:** MW-AP-03 Non-Parametric Prediction Interval on Background Useing largest background data value. **Compliance Test:** <u>Parameter</u> Sample Date Lab Id Re Upper Limit Compliance Exceedance Possible Post-Hoc SSI Trend **Testing** Result Calcium, tot ug/L 07/10/2017 1 of 2 1.910 AB27767 67.700 None y Calcium, tot ug/L 09/26/2017 AB28795 1 of 2 1.910 73.900 None y Run Id: 17 **Location Id:** MW-AP-03 **Compliance Test:** Parametric Prediction Interval on Background Parameter Sample Date Lab Id Re Upper Limit Compliance Exceedance Possible Post-Hoc Testing Result SSI Trend Chlorides mg/L 07/10/2017 AB27800 1 of 2 7.669 57.070 y Upward Chlorides mg/L 1 of 2 09/26/2017 AB28774 7.669 77.800 Upward У Run Id: 18 **Location Id:** MW-AP-03 Parametric Prediction Interval on Background **Compliance Test:** Sample Date Lab Id Re Upper Limit Compliance Exceedance Possible Post-Hoc <u>Parameter</u> Result SSI Trend Testing Field pH S.U. 1 of 2 5.270 07/10/2017 FLD20170710 6.100 y/n Field pH S.U. 09/26/2017 FLD20170926 1 of 2 5.270 6.350 y/n 19 Run Id:

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.

MW-AP-03

**Location Id:** 

### **Detection Monitoring Summary**

Run Id: 19 **Location Id:** MW-AP-03 **Double Quantification Rule Compliance Test:** Post-Hoc <u>Parameter</u> Sample Date Lab Id Re Upper Limit Compliance Exceedance **Possible** Trend Result SSI Testing Fluoride, total mg/L 07/10/2017 427697004 0.518 Downward y Fluoride, total mg/L 09/26/2017 434131005 0.674 Downward y Run Id: 20 **Location Id:** MW-AP-03 Non-Parametric Prediction Interval on Background Useing largest background data value. <u>Parameter</u> Sample Date Lab Id Re Upper Limit Compliance Exceedance Possible Post-Hoc Testing Result SSI Trend Sulfate, tot mg/L 07/10/2017 AB27800 1 of 2 0.830 58.290 y None 1 of 2 0.830 None Sulfate, tot mg/L 09/26/2017 AB28774 69.200 У Run Id: 21 **Location Id:** MW-AP-03 Parametric Prediction Interval on Background **Compliance Test:** Sample Date Lab Id Re Upper Limit Compliance Exceedance Possible Post-Hoc <u>Parameter</u> Result SSI Trend Testing 1 of 2 Total Dissolved Solids mg/L 07/10/2017 AB27800 44.248 391.000 Upward y Total Dissolved Solids mg/L 09/26/2017 AB28774 1 of 2 44.248 402.000 Upward у 22 Run Id:

Location Id: MW-AP-04

### **Detection Monitoring Summary**

Run Id: 22 **Location Id:** MW-AP-04 **Double Quantification Rule Compliance Test:** <u>Parameter</u> Sample Date Lab Id Re Upper Limit Compliance Exceedance Possible Post-Hoc SSI Trend Result Testing Boron, total ug/L 07/10/2017 AB27768 1.580 None y Boron, total ug/L 09/26/2017 AB28796 2.290 None y Run Id: 23 **Location Id:** MW-AP-04 Non-Parametric Prediction Interval on Background Useing largest background data value. <u>Parameter</u> Sample Date Lab Id Re Upper Limit Compliance Exceedance Possible Post-Hoc Testing Result SSI Trend Calcium, tot ug/L 07/10/2017 AB27768 1 of 2 1.910 93.800 y None Calcium, tot ug/L 1 of 2 09/26/2017 AB28796 1.910 98.900 None У Run Id: 24 **Location Id:** MW-AP-04 Parametric Prediction Interval on Background **Compliance Test:** <u>Parameter</u> Sample Date Lab Id Re Upper Limit Compliance Exceedance Possible Post-Hoc Result SSI Trend Testing Chlorides mg/L 1 of 2 11.660 07/10/2017 AB27801 7.669 y None Chlorides mg/L 09/26/2017 AB28775 1 of 2 7.669 15.800 None у 25 Run Id:

Location Id: MW-AP-04

## **Detection Monitoring Summary**

								Run Id:	25
Location Id: MW-AP-									
Compliance Test: Paramo	etric Prediction Inte	erval on Background							
<u>Parameter</u>	Sample Date	<u>Lab Id</u>	<u>Re</u> Testing	Upper Limit	Compliance Result	Exceedance	Possible SSI	Post-Hoc Trend	
Field pH S.U.	07/10/2017	FLD20170710	1 of 2	5.270	6.260	y/n	<u>—</u>		
Field pH S.U.	09/26/2017	FLD20170926	1 of 2	5.270	6.540	y/n			
								Run Id:	26
Location Id: MW-AP-	04								
Compliance Test: Double	Quantification Rul	e							
<u>Parameter</u>	Sample Date	<u>Lab Id</u>	<u>Re</u> <u>Testing</u>	<u>Upper Limit</u>	Compliance Result	Exceedance	Possible SSI	Post-Hoc Trend	
Fluoride, total mg/L	07/10/2017	427697005	<u></u>		0.188	у	<u></u>	None	
Fluoride, total mg/L	09/26/2017	434131006			0.286	У		None	
								Run Id:	27
Location Id: MW-AP-	04								
Compliance Test: Non-Pa	rametric Prediction	n Interval on Background	l Useing largest backg	ground data value.					
<u>Parameter</u>	Sample Date	<u>Lab Id</u>	<u>Re</u> <u>Testing</u>	<u>Upper Limit</u>	Compliance Result	Exceedance	Possible SSI	Post-Hoc Trend	
Sulfate, tot mg/L	07/10/2017	AB27801	1 of 2	0.830	< 0.000	n	<u></u>		
Sulfate, tot mg/L	09/26/2017	AB28775	1 of 2	0.830	0.670	n			
								Run Id:	28

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.

MW-AP-04

**Location Id:** 

### **Detection Monitoring Summary**

Run Id: 28 **Location Id:** MW-AP-04 Parametric Prediction Interval on Background **Compliance Test:** <u>Parameter</u> Sample Date Lab Id Re Upper Limit Compliance Exceedance **Possible** Post-Hoc Trend Result SSI **Testing** Total Dissolved Solids mg/L 1 of 2 07/10/2017 AB27801 44.248 446.000 None y Total Dissolved Solids mg/L 09/26/2017 AB28775 1 of 2 44.248 389.000 None y Run Id: 29 **Location Id:** MW-AP-05 **Compliance Test: Double Quantification Rule** Parameter Sample Date Lab Id Re Upper Limit Compliance Exceedance Possible Post-Hoc Testing Result SSI Trend Boron, total ug/L 07/06/2017 AB27755 < 1.000 n Boron, total ug/L 09/26/2017 AB28791 < 1.000 n 30 Run Id: MW-AP-05 **Location Id:** Non-Parametric Prediction Interval on Background Useing largest background data value. **Compliance Test:** Sample Date Lab Id Re Upper Limit Compliance Exceedance Possible Post-Hoc <u>Parameter</u> Result SSI Trend Testing Calcium, tot ug/L 1 of 2 1.910 07/06/2017 AB27755 11.600 y None Calcium, tot ug/L 09/26/2017 AB28791 1 of 2 1.910 12.600 None у 31 Run Id:

Location Id: MW-AP-05

## **Detection Monitoring Summary**

	NOW A D 05								Run Id:	31
	MW-AP-05									
<b>Compliance Test:</b>	Parametri	c Prediction Inter	rval on Background							
<u>Parameter</u>		Sample Date	<u>Lab Id</u>	Re Testing	Upper Limit	Compliance Result	Exceedance	Possible SSI	Post-Hoc Trend	
Chlorides mg/L		07/06/2017	AB27751	1 of 2	7.669	19.740	у	<del>_</del>	None	
Chlorides mg/L		09/26/2017	AB28770	1 of 2	7.669	19.500	у		None	
									Run Id:	32
<b>Location Id:</b>	MW-AP-05									
<b>Compliance Test:</b>	Parametri	c Prediction Inter	val on Background							
<u>Parameter</u>		Sample Date	<u>Lab Id</u>	<u>Re</u> <u>Testing</u>	Upper Limit	Compliance Result	Exceedance	Possible SSI	Post-Hoc Trend	
Field pH S.U.		07/06/2017	FLD20170706	1 of 2	5.270	5.990	y/n	<del>_</del>		
Field pH S.U.		09/26/2017	FLD20170926	1 of 2	5.270	6.120	y/n			
									Run Id:	33
<b>Location Id:</b>	MW-AP-05									
<b>Compliance Test:</b>	Double Qu	uantification Rule								
<u>Parameter</u>		Sample Date	<u>Lab Id</u>	<u>Re</u> <u>Testing</u>	Upper Limit	Compliance Result	Exceedance	Possible SSI	Post-Hoc Trend	
Fluoride, total mg/I	L	07/06/2017	427698004			< 0.100	n	<u>—</u>		
Fluoride, total mg/I	L	09/26/2017	434131003			< 0.100	n			
									Run Id:	34

Location Id: MW-AP-05

### **Detection Monitoring Summary**

Run Id: 34 **Location Id:** MW-AP-05 Non-Parametric Prediction Interval on Background Useing largest background data value. **Compliance Test:** Parameter Sample Date Lab Id Re Upper Limit Compliance Exceedance Possible Post-Hoc Trend **Testing** Result SSI Sulfate, tot mg/L 1 of 2 0.830 07/06/2017 AB27751 11.320 None y Sulfate, tot mg/L 09/26/2017 AB28770 1 of 2 0.830 1.350 None y Run Id: 35 **Location Id:** MW-AP-05 **Compliance Test:** Parametric Prediction Interval on Background Parameter Sample Date Lab Id Re Upper Limit Compliance Exceedance Possible Post-Hoc Testing Result SSI Trend Total Dissolved Solids mg/L 07/06/2017 AB27751 1 of 2 44.248 246.000 y None 1 of 2 None Total Dissolved Solids mg/L 09/26/2017 AB28770 44.248 279.000 У Run Id: 36 MW-AP-08 **Location Id: Double Quantification Rule Compliance Test:** Sample Date Lab Id Re Upper Limit Compliance Exceedance Possible Post-Hoc Parameter Result SSI Trend Testing Boron, total ug/L < 1.000 07/06/2017 AB27753 n Boron, total ug/L 09/26/2017 AB28792 < 1.000 n 37 Run Id:

Location Id: MW-AP-08

## **Detection Monitoring Summary**

								Run Id:	37
Location Id:	MW-AP-08								
Compliance Test:	Non-Parametric Prediction	Interval on Backgro	ound Useing largest back	kground data value.					
<u>Parameter</u>	Sample Date	<u>Lab Id</u>	<u>Re</u> Testing	Upper Limit	<u>Compliance</u> Result	Exceedance	Possible SSI	Post-Hoc Trend	
Calcium, tot ug/L	07/06/2017	AB27753	1 of 2	1.910	21.700	y	<u></u>	None	
Calcium, tot ug/L	09/26/2017	AB28792	1 of 2	1.910	20.400	у		None	
								Run Id:	38
<b>Location Id:</b>	MW-AP-08								
<b>Compliance Test:</b>	Parametric Prediction Inte	rval on Background							
<u>Parameter</u>	Sample Date	<u>Lab Id</u>	<u>Re</u> Testing	Upper Limit	Compliance Result	Exceedance	Possible SSI	Post-Hoc Trend	
Chlorides mg/L	07/06/2017	AB27749	1 of 2	7.669	18.450	у		None	
Chlorides mg/L	09/26/2017	AB28771	1 of 2	7.669	18.300	у		None	
								Run Id:	39
<b>Location Id:</b>	MW-AP-08								
<b>Compliance Test:</b>	Parametric Prediction Inte	rval on Background							
<u>Parameter</u>	Sample Date	<u>Lab Id</u>	<u>Re</u> Testing	Upper Limit	Compliance Result	Exceedance	Possible SSI	Post-Hoc Trend	
Field pH S.U.	07/06/2017	FLD20170706	1 of 2	5.270	5.580	y/n	551	<u></u>	
Field pH S.U.	09/26/2017	FLD20170926	1 of 2	5.270	5.950	y/n			
								Run Id:	40

Location Id: MW-AP-08

### **Detection Monitoring Summary**

Run Id: 40 **Location Id:** MW-AP-08 **Compliance Test: Double Quantification Rule** Parameter Sample Date Lab Id Re Upper Limit Compliance Exceedance Possible Post-Hoc SSI Trend Result Testing Fluoride, total mg/L 07/06/2017 427698002 0.304 None y Fluoride, total mg/L 09/26/2017 434131001 0.306 None y Run Id: 41 **Location Id:** MW-AP-08 Non-Parametric Prediction Interval on Background Useing largest background data value. <u>Parameter</u> Sample Date Lab Id Re Upper Limit Compliance Exceedance Possible Post-Hoc Testing Result SSI Trend Sulfate, tot mg/L 07/06/2017 AB27749 1 of 2 0.830 105.000 y None 1 of 2 0.830 Sulfate, tot mg/L 09/26/2017 AB28771 93.000 None У Run Id: 42 **Location Id:** MW-AP-08 Parametric Prediction Interval on Background **Compliance Test:** Sample Date Lab Id Re Upper Limit Compliance Exceedance Possible Post-Hoc Parameter Result SSI Trend Testing 1 of 2 347.000 Total Dissolved Solids mg/L 07/06/2017 AB27749 44.248 y None 1 of 2 Total Dissolved Solids mg/L 09/26/2017 AB28771 44.248 374.000 None у

Wateree Station January 18, 2018

1:54:04 PM

## All Backgound Results Non-Detect

Location Id: MW-AP-01 Run Id: 1

Parameter: Boron, total

Method: Double Quantification Rule

Percent ND: 0

Sample Date	Modified Result	Analysis Result	Detection Lmit	<u>PQL</u>	<u>RL</u>	Non Detect	<u>Exceedance</u>
07/10/2017	1.340	1.340	0.044	1.000	0.000	N	N
09/26/2017	1.900	1.900	0.040	1.000	0.000	N	у

Location Id: MW-AP-01 Run Id: 5

Parameter: Fluoride, total

Method: Double Quantification Rule

Percent ND: 0

Sample Date Modifi	ed Result Ana	alysis Result Dete	ction Lmit	<u>PQL</u>	<u>RL</u>	Non Detect	<u>Exceedance</u>
07/10/2017	0.340	0.340	0.033	0.100	0.000	N	N
09/26/2017	0.364	0.364	0.030	0.100	0.000	N	у

Location Id: MW-AP-02 Run Id: 8

Parameter: Boron, total

Method: Double Quantification Rule

Percent ND: 50

Sample Date	Modified Result	Analysis Result	Detection Lmit	<u>PQL</u>	<u>RL</u>	Non Detect	<u>Exceedance</u>
07/10/2017	1.000	0.617	0.044	1.000	0.000	Υ	N
09/26/2017	1.070	1.070	0.044	1.000	0.000	N	N

1:54:04 PM

## All Backgound Results Non-Detect

Location Id: MW-AP-02 Run Id: 12

Parameter: Fluoride, total

Method: Double Quantification Rule

Percent ND: 0

Sample Date	Modified Result	Analysis Result	Detection Lmit	<u>PQL</u>	<u>RL</u>	Non Detect	<u>Exceedance</u>
07/10/2017	0.199	0.199	0.033	0.100	0.000	N	N
09/26/2017	0.334	0.334	0.033	0.100	0.000	N	у

Location Id: MW-AP-03 Run Id: 15

Parameter: Boron, total

Method: Double Quantification Rule

Percent ND: 50

Sample Date	Modified Result	Analysis Result	Detection Lmit	<u>PQL</u>	<u>RL</u>	Non Detect	<u>Exceedance</u>
07/10/2017	1.000	0.915	0.044	1.000	0.000	Υ	N
09/26/2017	1.000	1.000	0.044	1.000	0.000	N	N

Location Id: MW-AP-03 Run Id: 19

Parameter: Fluoride, total

Method: Double Quantification Rule

Percent ND: 0

Sample Date	Modified Result	Analysis Result	Detection Lmit	<u>PQL</u>	<u>RL</u>	Non Detect	<u>Exceedance</u>
07/10/2017	0.518	0.518	0.033	0.100	0.000	N	N
09/26/2017	0.674	0.674	0.033	0.100	0.000	N	У

Location Id: MW-AP-04 Run Id: 22

Parameter: Boron, total

Method: Double Quantification Rule

Percent ND: 0

Sample Date	Modified Result	Analysis Result	Detection Lmit	<u>PQL</u>	<u>RL</u>	Non Detect	<u>Exceedance</u>
07/10/2017	1.580	1.580	0.044	1.000	0.000	N	N
09/26/2017	2.290	2.290	0.044	1.000	0.000	N	У

Location Id: MW-AP-04 Run Id: 26

Parameter: Fluoride, total

Method: Double Quantification Rule

Percent ND: 0

Sample Date	Modified Result	Analysis Result	Detection Lmit	<u>PQL</u>	<u>RL</u>	Non Detect	<u>Exceedance</u>
07/10/2017	0.188	0.188	0.033	0.100	0.000	N	N
09/26/2017	0.286	0.286	0.033	0.100	0.000	N	У

Location Id: MW-AP-05 Run Id: 29

Parameter: Boron, total

Method: Double Quantification Rule

Percent ND: 100

		Analysis Result	Detection Lmit	<u>PQL</u>	<u>RL</u>	Non Detect	<u>Exceedance</u>
07/06/2017	1.000	0.096	0.044	1.000	0.000	Υ	N
09/26/2017	1.000	0.044	0.044	1.000	0.000	Υ	N

Location Id: MW-AP-05 Run Id: 33

Parameter: Fluoride, total

Method: Double Quantification Rule

Percent ND: 100

Sample Date	Modified Result	Analysis Result	Detection Lmit	<u>PQL</u>	<u>RL</u>	Non Detect	<u>Exceedance</u>
07/06/2017	0.100	0.084	0.033	0.100	0.000	Υ	N
09/26/2017	0.100	0.076	0.033	0.100	0.000	Υ	N

1:54:04 PM

## All Backgound Results Non-Detect

Location Id: MW-AP-08 Run Id: 36

Parameter: Boron, total

Method: Double Quantification Rule

Percent ND: 100

07/06/2017 1.000 0.295 0.044 1.000 0.000	V	N
	Ť	IN
09/26/2017 1.000 0.285 0.044 1.000 0.000	Υ	N

Location Id: MW-AP-08 Run Id: 40

Parameter: Fluoride, total

Method: Double Quantification Rule

Percent ND: 0

Sample Date	Modified Result	Analysis Result	Detection Lmit	<u>PQL</u>	<u>RL</u>	Non Detect	<u>Exceedance</u>
07/06/2017	0.304	0.304	0.033	0.100	0.000	N	N
09/26/2017	0.306	0.306	0.033	0.100	0.000	N	у

### **Wateree Station** Parametric Prediction Interval on Background - Background Data Calculation

Number Of Locations:	6	Annual Site Wide False Positive Rate (SWFPR): 0.10
Number Of Parameters:	7	Sample Events per Year: 2
Sampling Plan:	Interwell	<u>Verification Sampling:</u> Pass 1 of 2 (one resample)

**Background Locations:** MW-AP-01A, MW-FGD-01

Insufficient Background: 0 DOR Tests: 2

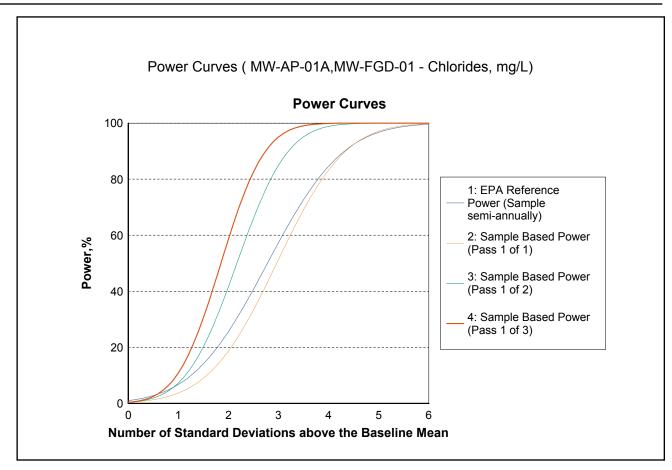
Background Date Range: 05/11/2016 to 09/25/2017 Parameter Name: Chlorides, mg/L Option for LT Pts: 0% to <= 15% Substitute ½ PQL Alpha Per Test FPR: 0.00174 Total Pts 16 Kappa for Selected Verification Plan: 1.968 LT Pts 0 Mean 5.5888 %LT Pts 0 StdDev 1.0567 Normal/Log Normal y/y <u>ln Mean</u> 1.7039 Log Transformed: ln StdDev 0.1907

Parameter Name:	Field pH, S.U.	Background Date Range:	05/11/2016 to 09/25/2017
Alpha Per Test FPR:	0.00174	Option for LT Pts:	$0\%$ to $\leq 15\%$ Substitute $\frac{1}{2}$ PQL
Total Pts	16	Kappa for Selected Verification Plan:	2.179
LT Pts	0	<u>Mean</u>	4.4650
%LT Pts	0	StdDev	0.3692
Normal/Log Normal	y/n	ln Mean	1.4928
Log Transformed:	n	In StdDev	0.0886

Parameter Name:	Total Dissolved Solids, mg/L	Background Date Range:	05/11/2016 to 09/25/2017
Alpha Per Test FPR:	0.00174	Option for LT Pts:	0% to <= 15% Substitute ½ PQL
Total Pts	16	Kappa for Selected Verification Plan:	1.968
LT Pts	0	Mean	32.3125
%LT Pts	0	<u>StdDev</u>	6.0632
Normal/Log Normal	y/y	<u>In Mean</u>	3.4598
Log Transformed:	n	<u>In StdDev</u>	0.1810

## Wateree Station Parametric Prediction Interval on Background - Background Data Calculation

Number Of Locations:	6	Annual Site Wide False Positive Rate (SWFPR): 0.10
Number Of Parameters:	7	Sample Events per Year: 2
Sampling Plan:	Interwell	<u>Verification Sampling:</u> Pass 1 of 2 (one resample)

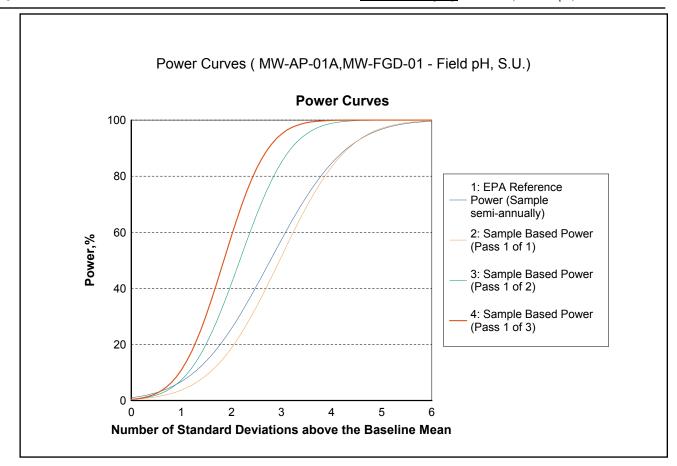


## Wateree Station Parametric Prediction Interval on Background - Background Data Calculation

 Number Of Locations:
 6
 Annual Site Wide False Positive Rate (SWFPR):
 0.10

 Number Of Parameters:
 7
 Sample Events per Year:
 2

 Sampling Plan:
 Interwell
 Verification Sampling:
 Pass 1 of 2 (one resample)

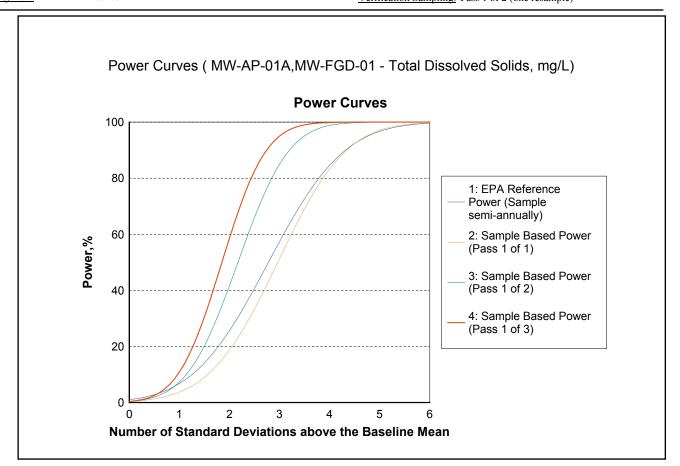


## Wateree Station Parametric Prediction Interval on Background - Background Data Calculation

 Number Of Locations:
 6
 Annual Site Wide False Positive Rate (SWFPR):
 0.10

 Number Of Parameters:
 7
 Sample Events per Year:
 2

 Sampling Plan:
 Interwell
 Verification Sampling:
 Pass 1 of 2 (one resample)



#### **User Supplied Information**

Sided: 1

 Background Date Range:
 05/11/2016 to 09/25/2017

 Compliance Date Range:
 07/05/2017 to 11/14/2017

Compliance Locations: MW-AP-01,MW-AP-02,MW-AP-03,MW-AP-04,MW-AP-05,MW-AP-08

Background Locations: MW-AP-01A,MW-FGD-01

**Location** MW-AP-01

Run Id: 3

Parameter Name: Chlorides, mg/L

Option for LT Pts (Compliance Data : 0% to <= 15% Substitute PQL

Result >

 Sample Date
 Analysis Result
 Upper Limit
 Upper Limit

 7/10/2017
 187.000
 7.669
 y

 9/26/2017
 195.000
 7.669
 y

Run Id: 4

Parameter Name: Field pH, S.U.

Option for LT Pts (Compliance Data : 0% to <= 15% Substitute PQL

			Result >		Result <
Sample Date	Analysis Result	Upper Limit	Upper Limit	Lower Limit	Lower Limit
7/10/2017	6.250	5.270	y	3.660	n
9/26/2017	6.710	5.270	y	3.660	n

Run Id: 7

Parameter Name: Total Dissolved Solids, mg/L

Option for LT Pts (Compliance Data : 0% to <= 15% Substitute PQL

Result >

 Sample Date
 Analysis Result
 Upper Limit
 Upper Limit
 Upper Limit

 7/10/2017
 442.000
 44.248
 y

 9/26/2017
 473.000
 44.248
 y

#### **User Supplied Information**

Sided: 1

 Background Date Range:
 05/11/2016 to 09/25/2017

 Compliance Date Range:
 07/05/2017 to 11/14/2017

Compliance Locations: MW-AP-01,MW-AP-02,MW-AP-03,MW-AP-04,MW-AP-05,MW-AP-08

Background Locations: MW-AP-01A,MW-FGD-01

**Location** MW-AP-02

Run Id: 10

Parameter Name: Chlorides, mg/L

Option for LT Pts (Compliance Data : 0% to <= 15% Substitute PQL

Result >

Sample Date	Analysis Result	Upper Limit	Upper Limit
7/10/2017	57.760	7.669	y
9/26/2017	104.000	7.669	y

Run Id: 11

Parameter Name: Field pH, S.U.

Option for LT Pts (Compliance Data : 0% to <= 15% Substitute PQL

			Result >		Result <
Sample Date	Analysis Result	<u>Upper Limit</u>	Upper Limit	Lower Limit	Lower Limit
7/10/2017	5.990	5.270	у	3.660	n
9/26/2017	6.440	5.270	у	3.660	n

Run Id: 14

Parameter Name: Total Dissolved Solids, mg/L

Option for LT Pts (Compliance Data : 0% to <= 15% Substitute PQL

Result >

Sample Date	Analysis Result	<u>Upper Limit</u>	Upper Limi
7/10/2017	313.000	44.248	у
9/26/2017	407.000	44.248	y

### **User Supplied Information**

Sided: 1

 Background Date Range:
 05/11/2016 to 09/25/2017

 Compliance Date Range:
 07/05/2017 to 11/14/2017

Compliance Locations: MW-AP-01,MW-AP-02,MW-AP-03,MW-AP-04,MW-AP-05,MW-AP-08

Background Locations: MW-AP-01A,MW-FGD-01

**Location** MW-AP-03

Run Id: 17

Parameter Name: Chlorides, mg/L

Option for LT Pts (Compliance Data : 0% to <= 15% Substitute PQL

Result >

Sample Date	Analysis Result	<u>Upper Limit</u>	Upper Limit
7/10/2017	57.070	7.669	у
9/26/2017	77.800	7.669	у

Run Id: 18

**Parameter Name:** Field pH, S.U.

Option for LT Pts (Compliance Data : 0% to <= 15% Substitute PQL

			Result >		Result <
Sample Date	Analysis Result	<u>Upper Limit</u>	Upper Limit	Lower Limit	Lower Limit
7/10/2017	6.100	5.270	у	3.660	n
9/26/2017	6.350	5.270	У	3.660	n

Run Id: 21

Parameter Name: Total Dissolved Solids, mg/L

Option for LT Pts (Compliance Data : 0% to <= 15% Substitute PQL

Result >

Sample Date	Analysis Result	<u>Upper Limit</u>	Upper Limit
7/10/2017	391.000	44.248	y
9/26/2017	402.000	44.248	y

#### **User Supplied Information**

Sided: 1

 Background Date Range:
 05/11/2016 to 09/25/2017

 Compliance Date Range:
 07/05/2017 to 11/14/2017

Compliance Locations: MW-AP-01,MW-AP-02,MW-AP-03,MW-AP-04,MW-AP-05,MW-AP-08

Background Locations: MW-AP-01A,MW-FGD-01

**Location** MW-AP-04

Run Id: 24

Parameter Name: Chlorides, mg/L

Option for LT Pts (Compliance Data : 0% to <= 15% Substitute PQL

Result >

 Sample Date
 Analysis Result
 Upper Limit
 Upper Limit

 7/10/2017
 11.660
 7.669
 y

 9/26/2017
 15.800
 7.669
 y

Run Id: 25

Parameter Name: Field pH, S.U.

Option for LT Pts (Compliance Data : 0% to <= 15% Substitute PQL

			Result >		Result <
Sample Date	Analysis Result	<u>Upper Limit</u>	Upper Limit	Lower Limit	Lower Limit
7/10/2017	6.260	5.270	у	3.660	n
9/26/2017	6.540	5.270	У	3.660	n

Run Id: 28

Parameter Name: Total Dissolved Solids, mg/L

Option for LT Pts (Compliance Data : 0% to <= 15% Substitute PQL

Result >

 Sample Date
 Analysis Result
 Upper Limit
 Upper Limit

 7/10/2017
 446.000
 44.248
 y

 9/26/2017
 389.000
 44.248
 y

#### **User Supplied Information**

Sided: 1

 Background Date Range:
 05/11/2016 to 09/25/2017

 Compliance Date Range:
 07/05/2017 to 11/14/2017

Compliance Locations: MW-AP-01,MW-AP-02,MW-AP-03,MW-AP-04,MW-AP-05,MW-AP-08

Background Locations: MW-AP-01A,MW-FGD-01

**Location** MW-AP-05

Run Id: 31

Parameter Name: Chlorides, mg/L

Option for LT Pts (Compliance Data : 0% to <= 15% Substitute PQL

Result >

 Sample Date
 Analysis Result
 Upper Limit
 Upper Limit

 7/6/2017
 19.740
 7.669
 y

 9/26/2017
 19.500
 7.669
 y

Run Id: 32

Parameter Name: Field pH, S.U.

Option for LT Pts (Compliance Data : 0% to <= 15% Substitute PQL

Result > Result < Sample Date Analysis Result Upper Limit Upper Limit Lower Limit Lower Limit 7/6/2017 5.990 5.270 y 3.660 n 9/26/2017 6.120 5.270 у 3.660 n

Run Id: 35

Parameter Name: Total Dissolved Solids, mg/L

Option for LT Pts (Compliance Data : 0% to <= 15% Substitute PQL

Result >

 Sample Date
 Analysis Result
 Upper Limit
 Upper Limit
 Upper Limit

 7/6/2017
 246.000
 44.248
 y

 9/26/2017
 279.000
 44.248
 y

#### **User Supplied Information**

Sided:

 Background Date Range:
 05/11/2016 to 09/25/2017

 Compliance Date Range:
 07/05/2017 to 11/14/2017

Compliance Locations: MW-AP-01,MW-AP-02,MW-AP-03,MW-AP-04,MW-AP-05,MW-AP-08

Background Locations: MW-AP-01A,MW-FGD-01

**Location** MW-AP-08

Run Id: 38

Parameter Name: Chlorides, mg/L

Option for LT Pts (Compliance Data : 0% to <= 15% Substitute PQL

Result >

 Sample Date
 Analysis Result
 Upper Limit
 Upper Limit

 7/6/2017
 18.450
 7.669
 y

 9/26/2017
 18.300
 7.669
 y

Run Id: 39

Parameter Name: Field pH, S.U.

Option for LT Pts (Compliance Data : 0% to <= 15% Substitute PQL

			Result >		Result <
Sample Date	Analysis Result	Upper Limit	Upper Limit	Lower Limit	Lower Limit
7/6/2017	5.580	5.270	y	3.660	n
9/26/2017	5.950	5.270	y	3.660	n

Run Id: 42

Parameter Name: Total Dissolved Solids, mg/L

Result >

 Sample Date
 Analysis Result
 Upper Limit
 Upper Limit

 7/6/2017
 347.000
 44.248
 y

 9/26/2017
 374.000
 44.248
 y

### **User Supplied Information**

Sided: 1

 Background Date Range:
 05/11/2016 to 09/25/2017

 Compliance Date Range:
 07/05/2017 to 11/14/2017

Compliance Locations: MW-AP-01,MW-AP-02,MW-AP-03,MW-AP-04,MW-AP-05,MW-AP-08

Background Locations: MW-AP-01A,MW-FGD-01

Location ID: MW-AP-01 Confidence Level: 0.95 Date Range: 05/11/2016 to 09/26/2017	Parameter Code: Parameter: Units:	01022 Boron, total ug/L
Option for LT Points: > 15% to <= 50% Substitute PQL	Percent of ND:	22
Theil-Sen Non-parametric estimate of the slope (One-Sided Test)		
Median Slope:	0.495	ug/L per year
Lower Confidence Limit of Slope, M1:	0.257	ug/L per year
Upper Confidence Limit of Slope, M2+1:	0.686	ug/L per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	2.726	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	Upward	

Location ID: MW-AP-01  Confidence Level: 0.95  Date Range: 05/11/2016 to 09/26/2017	Parameter Code: Parameter: Units:	00916 Calcium, tot 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:	14.483	ug/L per year
Lower Confidence Limit of Slope, M1:	10.371	ug/L per year
Upper Confidence Limit of Slope, M2+1:	17.563	ug/L per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	3.023	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	Upward	

Location ID: MW-AP-01 Confidence Level: 0.95 Date Range: 05/11/2016 to 09/26/2017	Parameter Code: Parameter: Units:	00940 Chlorides 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:	54.358	mg/L per year
Lower Confidence Limit of Slope, M1:	41.707	mg/L per year
Upper Confidence Limit of Slope, M2+1:	66.554	mg/L per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	3.440	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	Upward	

Location ID: MW-AP-01 Confidence Level: 0.95 Date Range: 05/11/2016 to 09/26/2017	Parameter Code: Parameter: Units:	00400 Field pH S.U.
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:	0.035	S.U. per year
Lower Confidence Limit of Slope, M1:	-0.406	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:	0.419	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	

Post Hoc Trend Analysis Run Id: 5

00951 Location ID: MW-AP-01 **Parameter Code:** Parameter: Fluoride, total **Confidence Level: Units:** mg/L Date Range: 05/11/2016 to 09/26/2017 0% to <= 15% Substitute PQL **Option for LT Points:** Percent of ND: 0 Theil-Sen Non-parametric estimate of the slope (One-Sided Test) Median Slope: 0.013 mg/L per year Lower Confidence Limit of Slope, M1: -0.021mg/L per year Upper Confidence Limit of Slope, M2+1: 0.047 mg/L per year Non-parametric Mann-Kendall Test for Trend S Statistic: 0.938 Z test: 1.645

None

At the 1.0 % Confidence Level (One-Sided Test):

Location ID: MW-AP-01  Confidence Level: 0.95  Date Range: 05/11/2016 to 09/26/2017  Option for LT Points: 0% to <= 15% Substitute PQL	Parameter Code: Parameter: Units: Percent of ND:	00945 Sulfate, tot mg/L 0
Median Slope:	3.305	mg/L per year
Lower Confidence Limit of Slope, M1:	-4.771	mg/L per year
Upper Confidence Limit of Slope, M2+1:	8.013	mg/L per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	0.839	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	

Post Hoc Trend Analysis Run Id: 7

Location ID: MW-AP-01 Parameter Code: 00515

Confidence Level: 0.95 Parameter: Total Dissolved Solids

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:90.446mg/L per yearLower Confidence Limit of Slope, M1:62.683mg/L per yearUpper Confidence Limit of Slope, M2+1:115.078mg/L per year

Non-parametric Mann-Kendall Test for Trend

S Statistic: 3.023

Z test: 1.645

At the 1.0 % Confidence Level (One-Sided Test): Upward

Location ID: MW-AP-02 Confidence Level: 0.95 Date Range: 05/11/2016 to 09/26/2017	Parameter Code: Parameter: Units:	01022 Boron, total ug/L
Option for LT Points: > 50% to <= 100 % Substitute PQL	Percent of ND:	56
Theil-Sen Non-parametric estimate of the slope (One-Sided Test)		
Median Slope:	0.000	ug/L per year
Lower Confidence Limit of Slope, M1:	0.000	ug/L per year
Upper Confidence Limit of Slope, M2+1:	0.058	ug/L per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	1.003	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	

Location ID: MW-AP-02 Confidence Level: 0.95 Date Range: 05/11/2016 to 09/26/2017	Parameter Code: Parameter: Units:	00916 Calcium, tot 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:	-13.323	ug/L per year
Lower Confidence Limit of Slope, M1:	-26.430	ug/L per year
Upper Confidence Limit of Slope, M2+1:	1.577	ug/L per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	-1.564	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	

Location ID: MW-AP-02  Confidence Level: 0.95  Date Range: 05/11/2016 to 09/26/2017  Option for LT Points: 0% to <= 15% Substitute PQL	Parameter Code: Parameter: Units: Percent of ND:	00940 Chlorides
		mg/L 0
Median Slope:	40.671	mg/L per year
Lower Confidence Limit of Slope, M1:	-15.370	mg/L per year
Upper Confidence Limit of Slope, M2+1:	97.832	mg/L per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	1.147	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	

Location ID: MW-AP-02  Confidence Level: 0.95  Date Range: 05/11/2016 to 09/26/2017  Option for LT Points: 0% to <= 15% Substitute PQL	Parameter Code: Parameter: Units: Percent of ND:	00400 Field pH S.U.
		0
Theil-Sen Non-parametric estimate of the slope (One-Sided Test)		
Median Slope:	-0.059	S.U. per year
Lower Confidence Limit of Slope, M1:	-0.856	S.U. per year
Upper Confidence Limit of Slope, M2+1:	0.411	S.U. per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	-0.313	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	

Location ID: MW-AP-02 Confidence Level: 0.95 Date Range: 05/11/2016 to 09/26/2017	Parameter Code: Parameter: Units:	00951 Fluoride, total 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:	-0.030	mg/L per year
Lower Confidence Limit of Slope, M1:	-0.151	mg/L per year
Upper Confidence Limit of Slope, M2+1:	0.172	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	

Location ID: MW-AP-02 Confidence Level: 0.95 Date Range: 05/11/2016 to 09/26/2017	Parameter Code: Parameter: Units:	00945 Sulfate, tot 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:	-25.195	mg/L per year
Lower Confidence Limit of Slope, M1:	-44.973	mg/L per year
Upper Confidence Limit of Slope, M2+1:	1.392	mg/L per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	-1.564	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	

Post Hoc Trend Analysis Run Id: 14

00515 Location ID: MW-AP-02 **Parameter Code:** Parameter: **Total Dissolved Solids Confidence Level: Units:** mg/L Date Range: 05/11/2016 to 09/26/2017 0% to <= 15% Substitute PQL **Option for LT Points:** Percent of ND: 0 Theil-Sen Non-parametric estimate of the slope (One-Sided Test) Median Slope: mg/L per year -5.530 Lower Confidence Limit of Slope, M1: -59.929 mg/L per year Upper Confidence Limit of Slope, M2+1: 83.994 mg/L per year Non-parametric Mann-Kendall Test for Trend S Statistic: 0.000 1.645

None

MANAGES V 4.0.21555

Location ID: MW-AP-03 Confidence Level: 0.95	Parameter Code: Parameter: Units: Percent of ND:	01022
		Boron, total ug/L 22
Date Range: 05/11/2016 to 09/26/2017		
Option for LT Points: > 15% to <= 50% Substitute PQL		
Theil-Sen Non-parametric estimate of the slope (One-Sided Test)		
Median Slope:	-0.016	ug/L per year
Lower Confidence Limit of Slope, M1:	-0.104	ug/L per year
Upper Confidence Limit of Slope, M2+1:	0.033	ug/L per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	-0.767	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	

Location ID: MW-AP-03  Confidence Level: 0.95  Date Range: 05/11/2016 to 09/26/2017  Option for LT Points: 0% to <= 15% Substitute PQL	Parameter Code: Parameter: Units: Percent of ND:	00916 Calcium, tot ug/L 0
Median Slope:	9.335	ug/L per year
Lower Confidence Limit of Slope, M1:	-15.943	ug/L per year
Upper Confidence Limit of Slope, M2+1:	25.334	ug/L per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	0.839	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	

Location ID: MW-AP-03 Confidence Level: 0.95 Date Range: 05/11/2016 to 09/26/2017	Parameter Code: Parameter: Units:	00940 Chlorides 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:	40.811	mg/L per year
Lower Confidence Limit of Slope, M1:	11.376	mg/L per year
Upper Confidence Limit of Slope, M2+1:	70.894	mg/L per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	2.815	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	Upward	

Location ID: MW-AP-03 Confidence Level: 0.95 Date Range: 05/11/2016 to 09/26/2017	Parameter Code: Parameter: Units:	00400 Field pH S.U.
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:	-0.072	S.U. per year
Lower Confidence Limit of Slope, M1:	-0.763	S.U. per year
Upper Confidence Limit of Slope, M2+1:	0.532	S.U. per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	-0.419	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	

Location ID: MW-AP-03  Confidence Level: 0.95  Date Range: 05/11/2016 to 09/26/2017  Option for LT Points: 0% to <= 15% Substitute PQL	Parameter Code: Parameter: Units: Percent of ND:	00951 Fluoride, total mg/L 0
Theil-Sen Non-parametric estimate of the slope (One-Sided Test)		
Median Slope:	-0.162	mg/L per year
Lower Confidence Limit of Slope, M1:	-0.354	mg/L per year
Upper Confidence Limit of Slope, M2+1:	-0.032	mg/L per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	-1.772	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	Downward	

Location ID: MW-AP-03  Confidence Level: 0.95  Date Range: 05/11/2016 to 09/26/2017  Option for LT Points: 0% to <= 15% Substitute PQL	Parameter Code: Parameter: Units: Percent of ND:	00945 Sulfate, tot mg/L 0
Median Slope:	6.914	mg/L per year
Lower Confidence Limit of Slope, M1:	-20.677	mg/L per year
Upper Confidence Limit of Slope, M2+1:	42.817	mg/L per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	1.147	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	

Location ID: MW-AP-03  Confidence Level: 0.95  Date Range: 05/11/2016 to 09/26/2017	Parameter Code: Parameter: Units:	00515 Total Dissolved Solids 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:	69.455	mg/L per year
Lower Confidence Limit of Slope, M1:	20.218	mg/L per year
Upper Confidence Limit of Slope, M2+1:	135.093	mg/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	

Location ID: MW-AP-04  Confidence Level: 0.95  Date Range: 05/11/2016 to 09/26/2017  Option for LT Points: 0% to <= 15% Substitute PQL	Parameter Code: Parameter: Units: Percent of ND:	01022 Boron, total ug/L 11			
			Theil-Sen Non-parametric estimate of the slope (One-Sided Test)		
			Median Slope:	-0.197	ug/L per year
			Lower Confidence Limit of Slope, M1:	-1.379	ug/L per year
Upper Confidence Limit of Slope, M2+1:	0.932	ug/L per year			
Non-parametric Mann-Kendall Test for Trend					
S Statistic:	-0.104				
Z test:	1.645				
At the 1.0 % Confidence Level (One-Sided Test):	None				

Location ID: MW-AP-04  Confidence Level: 0.95  Date Range: 05/11/2016 to 09/26/2017  Option for LT Points: 0% to <= 15% Substitute PQL	Parameter Code: Parameter: Units: Percent of ND:	00916 Calcium, tot ug/L 0			
			Theil-Sen Non-parametric estimate of the slope (One-Sided Test)		
			Median Slope:	-5.645	ug/L per year
			Lower Confidence Limit of Slope, M1:	-22.296	ug/L per year
Upper Confidence Limit of Slope, M2+1:	19.521	ug/L per year			
Non-parametric Mann-Kendall Test for Trend					
S Statistic:	-0.313				
Z test:	1.645				
At the 1.0 % Confidence Level (One-Sided Test):	None				

Location ID: MW-AP-04  Confidence Level: 0.95  Date Range: 05/11/2016 to 09/26/2017  Option for LT Points: 0% to <= 15% Substitute PQL	Parameter Code: Parameter: Units: Percent of ND:	00940 Chlorides mg/L 0
Theil-Sen Non-parametric estimate of the slope (One-Sided Test)		
Median Slope:	-4.418	mg/L per year
Lower Confidence Limit of Slope, M1:	-8.743	mg/L per year
Upper Confidence Limit of Slope, M2+1:	1.029	mg/L per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	-1.468	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	

Location ID: MW-AP-04 Confidence Level: 0.95 Date Range: 05/11/2016 to 09/26/2017	Parameter Code: Parameter: Units:	00400 Field pH S.U.
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:	0.143	S.U. per year
Lower Confidence Limit of Slope, M1:	-0.406	S.U. per year
Upper Confidence Limit of Slope, M2+1:	0.706	S.U. 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	

Location ID: MW-AP-04  Confidence Level: 0.95  Date Range: 05/11/2016 to 09/26/2017	Parameter Code: Parameter: Units:	00951 Fluoride, total 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:	-0.069	mg/L per year
Lower Confidence Limit of Slope, M1:	-0.202	mg/L per year
Upper Confidence Limit of Slope, M2+1:	0.016	mg/L per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	-1.355	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	

Location ID: MW-AP-04 Confidence Level: 0.95 Date Range: 05/11/2016 to 09/26/2017	Parameter Code: Parameter: Units:	00945 Sulfate, tot mg/L
Option for LT Points: > 50% to <= 100 % Substitute PQL	Percent of ND:	67
Theil-Sen Non-parametric estimate of the slope (One-Sided Test)		
Median Slope:	-0.636	mg/L per year
Lower Confidence Limit of Slope, M1:	-1.411	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:	-1.413	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	

Location ID: MW-AP-04 Confidence Level: 0.95 Date Range: 05/11/2016 to 09/26/2017	Parameter Code: Parameter: Units:	00515 Total Dissolved Solids 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:	22.015	mg/L per year
Lower Confidence Limit of Slope, M1:	-52.614	mg/L per year
Upper Confidence Limit of Slope, M2+1:	51.555	mg/L 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	

Location ID: MW-AP-05	Parameter Code:	01022			
Confidence Level: 0.95  Date Range: 05/11/2016 to 09/26/2017  Option for LT Points: > 50% to <= 100 % Substitute PQL	Parameter: Units: Percent of ND:	Boron, total ug/L 100			
			Theil-Sen Non-parametric estimate of the slope (One-Sided Test)		
			Median Slope:	0.000	ug/L per year
Lower Confidence Limit of Slope, M1:	0.000	ug/L per year			
Upper Confidence Limit of Slope, M2+1:	0.000	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				

Location ID: MW-AP-05 Confidence Level: 0.95	Parameter Code: Parameter: Units: Percent of ND:	00916
		Calcium, tot ug/L 0
Date Range: 05/11/2016 to 09/26/2017		
Option for LT Points: 0% to <= 15% Substitute PQL		
Theil-Sen Non-parametric estimate of the slope (One-Sided Test)		
Median Slope:	-0.472	ug/L per year
Lower Confidence Limit of Slope, M1:	-1.296	ug/L per year
Upper Confidence Limit of Slope, M2+1:	0.297	ug/L per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	-0.949	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	

Location ID: MW-AP-05 Confidence Level: 0.95 Date Range: 05/11/2016 to 09/26/2017	Parameter Code: Parameter: Units:	00940 Chlorides 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:	0.358	mg/L per year
Lower Confidence Limit of Slope, M1:	-1.054	mg/L per year
Upper Confidence Limit of Slope, M2+1:	1.237	mg/L per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	0.419	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	

Location ID: MW-AP-05 Confidence Level: 0.95 Date Range: 05/11/2016 to 09/26/2017	Parameter Code: Parameter: Units:	00400 Field pH S.U.
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:	0.056	S.U. per year
Lower Confidence Limit of Slope, M1:	-0.681	S.U. per year
Upper Confidence Limit of Slope, M2+1:	0.565	S.U. per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	0.104	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	

Post Hoc Trend Analysis Run Id: 33

00951 Location ID: MW-AP-05 **Parameter Code:** Parameter: Fluoride, total **Confidence Level: Units:** mg/L Date Range: 05/11/2016 to 09/26/2017 > 50% to <= 100 % Substitute PQL **Option for LT Points:** 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: 0.000mg/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

None

At the 1.0 % Confidence Level (One-Sided Test):

Location ID: MW-AP-05 Confidence Level: 0.95	Parameter Code: Parameter: Units: Percent of ND:	00945
		Sulfate, tot mg/L 33
Date Range: 05/11/2016 to 09/26/2017		
Option for LT Points: > 15% to <= 50% Substitute PQL		
Theil-Sen Non-parametric estimate of the slope (One-Sided Test)		
Median Slope:	-4.504	mg/L per year
Lower Confidence Limit of Slope, M1:	-10.937	mg/L per year
Upper Confidence Limit of Slope, M2+1:	1.895	mg/L per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	-1.048	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	

Post Hoc Trend Analysis Run Id: 35

Location ID: MW-AP-05 Parameter Code: 00515

Confidence Level: 0.95 Parameter: Total Dissolved Solids

Date Range: 05/11/2016 to 09/26/2017 Units: mg/L Option for LT Points: 0% to  $\le 15\%$  Substitute PQL Percent of ND: 0

Theil-Sen Non-parametric estimate of the slope (One-Sided Test)

Median Slope:9.517mg/L per yearLower Confidence Limit of Slope, M1:-40.423mg/L per yearUpper Confidence Limit of Slope, M2+1:40.068mg/L per year

Non-parametric Mann-Kendall Test for Trend

S Statistic: 0.313 Z test: 1.645

At the 1.0 % Confidence Level (One-Sided Test): None

Location ID: MW-AP-08 Confidence Level: 0.95	Parameter Code: Parameter:	01022 Boron, total
Date Range: 05/11/2016 to 09/26/2017	Units:	ug/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	ug/L per year
Lower Confidence Limit of Slope, M1:	0.000	ug/L per year
Upper Confidence Limit of Slope, M2+1:	0.000	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	

Location ID: MW-AP-08  Confidence Level: 0.95  Date Range: 05/11/2016 to 09/26/2017  Option for LT Points: 0% to <= 15% Substitute PQL	Parameter Code: Parameter: Units: Percent of ND:	00916			
		Calcium, tot ug/L 0			
			Theil-Sen Non-parametric estimate of the slope (One-Sided Test)		
			Median Slope:	-0.296	ug/L per year
Lower Confidence Limit of Slope, M1:	-2.586	ug/L per year			
Upper Confidence Limit of Slope, M2+1:	3.714	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				

Location ID: MW-AP-08  Confidence Level: 0.95  Date Range: 05/11/2016 to 09/26/2017  Option for LT Points: 0% to <= 15% Substitute PQL	Parameter Code: Parameter: Units: Percent of ND:	00940 Chlorides
		mg/L 0
Median Slope:	0.159	mg/L per year
Lower Confidence Limit of Slope, M1:	-2.225	mg/L per year
Upper Confidence Limit of Slope, M2+1:	2.202	mg/L per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	0.104	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	

Location ID: MW-AP-08 Confidence Level: 0.95	Parameter Code: Parameter: Units: Percent of ND:	00400
		Field pH S.U.
Date Range: 05/11/2016 to 09/26/2017		
Option for LT Points: 0% to <= 15% Substitute PQL		0
Theil-Sen Non-parametric estimate of the slope (One-Sided Test)		
Median Slope:	-0.114	S.U. per year
Lower Confidence Limit of Slope, M1:	-0.462	S.U. per year
Upper Confidence Limit of Slope, M2+1:	0.110	S.U. per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	-0.938	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	

Location ID: MW-AP-08  Confidence Level: 0.95  Date Range: 05/11/2016 to 09/26/2017  Option for LT Points: 0% to <= 15% Substitute PQL	Parameter Code: Parameter:	00951 Fluoride, total mg/L 0
	Units: Percent of ND:	
·		
Theil-Sen Non-parametric estimate of the slope (One-Sided Test)		
Median Slope:	-0.074	mg/L per year
Lower Confidence Limit of Slope, M1:	-0.153	mg/L per year
Upper Confidence Limit of Slope, M2+1:	0.029	mg/L per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	-1.355	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	

Location ID: MW-AP-08  Confidence Level: 0.95  Date Range: 05/11/2016 to 09/26/2017  Option for LT Points: 0% to <= 15% Substitute PQL	Parameter Code: Parameter: Units: Percent of ND:	00945 Sulfate, tot mg/L 11			
			Theil-Sen Non-parametric estimate of the slope (One-Sided Test)		
			Median Slope:	-3.752	mg/L per year
Lower Confidence Limit of Slope, M1:	-32.138	mg/L per year			
Upper Confidence Limit of Slope, M2+1:	99.444	mg/L per year			
Non-parametric Mann-Kendall Test for Trend					
S Statistic:	-0.313				
Z test:	1.645				
At the 1.0 % Confidence Level (One-Sided Test):	None				

Location ID: MW-AP-08  Confidence Level: 0.95  Date Range: 05/11/2016 to 09/26/2017  Option for LT Points: 0% to <= 15% Substitute PQL	Parameter Code: Parameter: Units: Percent of ND:	00515 Total Dissolved Solids mg/L 0
Theil-Sen Non-parametric estimate of the slope (One-Sided Test)	0.160	σ.
Median Slope:	-9.168	mg/L per year
Lower Confidence Limit of Slope, M1:	-35.882	mg/L per year
Upper Confidence Limit of Slope, M2+1:	11.562	mg/L per year
Non-parametric Mann-Kendall Test for Trend		
S Statistic:	-1.355	
Z test:	1.645	
At the 1.0 % Confidence Level (One-Sided Test):	None	