DOMINION ENERGY SOUTH CAROLINA

WATEREE STATION CLASS III INDUSTRIAL LANDFILL

RICHLAND COUNTY, SOUTH CAROLINA

EPA CCR RULE COMPLIANCE

2023 CCR ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

January 31, 2024

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Executive Summary

Dominion Energy South Carolina (DESC) operates a Class III Industrial Landfill (Unit) for the disposal of coal combustion residuals (CCR) at the Wateree Generating Station (Station) located in Eastover, Richland County, South Carolina. The Unit receives CCR generated from the combustion of coal at the Station. Management of the CCR in the Unit is performed pursuant to national criteria established in Title 40 of the Code of Federal Regulations (40 CFR), Part 257 (CCR Rule), effective April 19, 2015, and subsequent revisions to the CCR Rule. Pursuant to the CCR Rule, the Station operator is required to complete an *Annual Groundwater Monitoring and Corrective Action Report* for the Unit by January 31st, annually.

This report documents the status of the CCR groundwater monitoring program for the Unit, summarizes key actions completed, describes issues encountered, actions taken to resolve identified concerns, and planned key activities for the upcoming year.

In accordance with 40 CFR Part 257.90(e)(6), the following information is being provided as an overview of the current status of groundwater monitoring and corrective action for the Unit:

i. At the start of the current annual reporting period, indicate whether the CCR unit was operating under the detection monitoring program in §257.94 or the assessment monitoring program in §257.95.

- At the start of 2023, the Unit was operating under the detection monitoring program in accordance with §257.94.

ii. At the end of the current annual reporting period, indicate whether the CCR unit was operating under the detection monitoring program in §257.94 or the assessment monitoring program in §257.95.

- At the end of 2023, the Unit was operating under the detection monitoring program in accordance with §257.94.

iii. If it was determined that there was a statistically significant increase over background for one or more constituents listed in Appendix III to this part pursuant to §257.94(e).

a. Identify those constituents listed in Appendix III to this part and the names of the monitoring wells associated with such an increase.

- In 2023, there were SSIs over background for the following Appendix III constituents at the following wells:
  - Chloride – MW-LF-07, MW-LF-11, MW-LF-12, and MW-LF-22

- Fluoride – MW-LF-12

b. *Provide the date when the assessment program was initiated for the CCR unit.*

   - The Unit is in the detection monitoring program and has not initiated assessment monitoring to date.

iv. *If it was determined that there was a statistically significant level above the groundwater protection standard for one or more constituents listed in Appendix IV to this part pursuant to §257.95(g).*

a. *Identify those constituents listed in Appendix IV to this part and the names of the monitoring wells associated with such an increase.*

   - The Unit is in the detection monitoring program and Appendix IV constituents were not evaluated in 2023.

b. *Provide the date when the assessment of corrective measures was initiated for the CCR unit.*

   - The Unit has not entered the assessment monitoring program and therefore this item is not applicable.

c. *Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit.*

   - The Unit has not entered the assessment monitoring program and therefore this item is not applicable.

d. Provide the date when the assessment of corrective measures was completed for the CCR unit.

   - The Unit has not entered the assessment monitoring program and therefore this item is not applicable.

v. *Whether a remedy was selected pursuant to §257.97 during the current annual reporting period, and if so, the date of the remedy selection.*

- The Unit has not entered the assessment monitoring program and therefore this item is not applicable.

vi. *Whether remedial activities were initiated or are ongoing pursuant to §257.98 during the current annual reporting period.*

- Remedial activities were not initiated or are not ongoing during this current annual reporting period.

Section 1
Introduction

This *2023 CCR Annual Groundwater Monitoring and Corrective Action Report* (Report) was prepared on behalf of Dominion Energy South Carolina (DESC) for the Class III Industrial Landfill (Unit) at the Wateree Generating Station (Station) located in Eastover, Richland County, South Carolina. Coal combustion residuals (CCR) are produced as part of the electrical generation operations and is disposed of in the Unit. The CCR Unit is managed in accordance with the South Carolina Department of Health and Environmental Control (SC DHEC) Class III Landfill Permit (Permit No. LF3-00026) and the national criteria established by the CCR Rule. DESC installed a groundwater monitoring system at the Unit that is subject to the groundwater monitoring and corrective action requirements provided under 40 CFR §257.90 through §257.98. In accordance with 40 CFR §257.90(e), DESC must prepare an annual report by January 31st that provides information regarding the groundwater monitoring and corrective action program at the Unit. This Report provides the monitoring and corrective action data and data evaluations for the semiannual CCR monitoring compliance events performed in March and October 2023.

1.1 Site Location

The Station is operated by DESC and is located at 142 Wateree Station Road in Richland County, South Carolina (**Figure 1**). The Station is located approximately 5 miles southeast of Eastover, South Carolina. The Unit is located on the western portion of the Station property approximately 2,000 feet from the generating plant.

1.2 Site History

The Station is an active coal-fired steam electric power generating facility. The Station houses two identical coal-fired generating units, Unit 1 and Unit 2, which began operation in 1970 and 1971, respectively. Each unit has a gross generating capacity of 372 megawatts. The Station includes the Class III Industrial Landfill (Unit) and is currently regulated under the CCR Rule.

1.3 Key Actions

Key actions for the Unit are as follows:

- Permitted for management of CCR by SC DHEC under Class III Landfill Permit No. LF3-00026 originally issued February 11, 2008.
- Initiated the Detection Monitoring Program (DMP) on May 12, 2016, with the collection of eight (8) baseline/background samples and completed the background monitoring activities on July 24-25, 2017, pursuant to 40 CFR §257.94(b).

- Conducted the initial DMP compliance sampling event on September 26-27, 2017, pursuant to 40 CFR §257.94.
- Placed a copy of the Units Groundwater Monitoring Plan (GMP) documenting the design information for the monitoring wells pursuant to 40 CFR §257.91(e)(1) in the Station's operating record on October 17, 2017, pursuant to 40 CFR §257.105(h)(2).
- Certified the groundwater monitoring system pursuant to 40 CFR §257.91(f) and posted the Certification in the Station's operating record on October 17, 2017, pursuant to 40 CFR §257.105(h)(3).
- Certified the selection of a statistical method pursuant to 40 CFR §257.93(f)(6) and posted the Certification in the Station's operating record on October 17, 2017, pursuant to 40 CFR §257.105(h)(4).
- Background concentrations of Appendix III constituents were updated using United States Environmental Protection Agency-approved statistical procedures in August 2021.
- Completed an Alternate Source Demonstration (ASD) per 40 CFR §257.94(e)(2) on March 24, 2023 in response to potential Statistically Significant Increases (SSIs) identified during the statistical evaluation of the data generated from the second semiannual 2022 (September 2022) detection monitoring event. The ASD was certified by a South Carolina-registered professional engineer. As required by 40 CFR §257.94(e)(2), a copy of the ASD is included in **Appendix A**. Based on the successful evaluation and the results presented in the ASD, DESC continued with detection monitoring in accordance with 40 CFR §257.94.
- In December 2022, DESC installed three new groundwater monitoring wells (MW-LF-01D, MW-LF-12, and MW-BG-74) upgradient to the northeast of the Unit as part of an evaluation of the United States Environmental Protection Agency (EPA) CCR Compliance Monitoring Well Network performed by TRC in July 2022. The newly installed groundwater monitoring wells were sampled monthly from January 2023 through August 2023, to collect eight rounds of background monitoring data. The groundwater monitoring system was revised and certified pursuant to 40 CFR §257.91(f). The certification was posted in the Station's operating record on October 6, 2023, pursuant to 40 CFR §257.105(h)(3).
- Conducted the first semiannual 2023 detection monitoring between March 13 - 16, 2023 and completed the sample analyses on March 29, 2023, pursuant to the CCR Rule [§257.94(b)].
- Completed an ASD per 40 CFR §257.94(e)(2) for the potential SSIs identified during the first semiannual 2023 detection monitoring event. The ASD was certified by a South Carolina-registered professional engineer. As required by 40 CFR §257.94(e)(2), a copy of the ASD is included in this Report and provided in **Appendix B**. DESC continued with detection monitoring in accordance with 40 CFR §257.94.

- Conducted the second semiannual 2023 detection monitoring on October 10, 2023, in accordance with the revised groundwater monitoring system, and completed the sample analyses on December 1, 2023, pursuant to the CCR Rule [§257.94(b)].
- Completed a baseline statistical evaluation in November 2023 to meet the requirements of 40 CFR 257.91 for the revised EPA CCR Compliance Monitoring Well Network.
- The Unit remained in detection monitoring for the duration of 2023.

1.4 Monitoring Program Concerns

There were no monitoring program concerns identified during 2023.

Section 2
Site Information

2.1 Monitoring Well Network

Groundwater monitoring wells (MW-LF-07, MW-LF-08, MW-LF-10, and MW-LF-11) were installed in March 2016 at the Unit to serve as the EPA CCR Compliance Monitoring Well Network. Existing monitoring wells (MW-LF-01, MW-LF-06, and MW-LF-22) utilized for other monitoring programs for the Unit, were incorporated into the CCR Compliance Monitoring Well Network in 2016. Two additional groundwater monitoring wells, MW-LF-10A and MW-BG-73, were installed in November 2016 and November 2017, respectively. Three additional groundwater monitoring wells, AS-LF-01, AS-LF-02, and AS-LF-03, were installed in June 2017 to support potential ASD activities.

From July 2022 through September 2023, TRC performed a network evaluation to assess the current CCR monitoring well network for the Unit. As part of this evaluation, three new groundwater monitoring wells (MW-LF-01D, MW-LF-12, and MW-BG-74) were installed in December 2022 and were used to assist with groundwater flow of the Unit while the network evaluation was being performed. Based on this evaluation, the following revisions were made to refine the CCR monitoring well network:

- MW-LF-01 and MW-BG-73 were removed from the CCR monitoring well network and repurposed for the measurement of water levels only. Both wells were determined to be screened in perched water and new monitoring wells MW-LF-01D and MW-BG-74 were installed as replacement, respectively.
- MW-LF-06 was removed from the CCR monitoring well network and repurposed for the measurement of water levels only. This well was determined to not be located upgradient of the Unit.
- New monitoring well MW-LF-12 was installed along the western edge of the Unit boundary as previously no coverage existed in this area. MW-LF-12 was incorporated into the CCR monitoring well network.

Pursuant to 40 CFR §257.91, the new monitoring wells were sampled monthly from January 2023 to August 2023.

Given that the CCR monitoring well network evaluation was ongoing during the first 2023 semiannual sampling event, the Compliance Monitoring Well Network for the first 2023 semiannual sampling event consisted of the following monitoring wells:

- Background monitoring wells - MW-BG-73, MW-LF-01, , and MW-LF-06.
- Downgradient monitoring wells - MW-LF-07, MW-LF-08, MW-LF-10A, MW-LF-11, and MW-LF-22.

The location of the EPA CCR Rule Compliance Monitoring Well Network for the March 2023 semiannual sampling event is presented on **Figure 2**.

The monitoring well network was formally updated and certified in October 2023 (TRC, 2023b) to ensure the groundwater monitoring well network met the requirements of 40 CFR 257.91. The Compliance Monitoring Well Network for the second 2023 semiannual sampling event consisted of the following monitoring wells:

- Background monitoring wells - MW-BG-74, MW-LF-01D, and AS-LF-03.
- Downgradient monitoring wells - AS-LF-02, MW-LF-07, MW-LF-08, MW-LF-10A, MW-LF-11, MW-LF-12, and MW-LF-22.

The location of the EPA CCR Rule Compliance Monitoring Well Network for the October 2023 semiannual sampling event is presented on **Figure 3**.

2.2 Monitoring Well Installation and Decommissioning Activities

No groundwater monitoring wells were installed or decommissioned during 2023.

2.3 Groundwater Potentiometric Surface Evaluation

Current and historical static water level data for the Station are summarized in **Table 1**. Per requirements of 40 CFR 257.93(c), the rate and direction of groundwater flow within the uppermost aquifer beneath the Unit must be determined after each sampling event. Groundwater potentiometric surface maps were prepared using water level data obtained from both semiannual sampling events conducted in March and October 2023. Using the groundwater contours from March (**Figure 4**) and October (**Figure 5**), the average horizontal hydraulic gradient was calculated using the following equation:

$$i = (\mathrm{h}^1 - \mathrm{h}^2)/\mathrm{S}$$

Where:

i = horizontal hydraulic gradient (unitless)
h^1 = water elevation in well 1 (feet)
h^2 = water elevation in well 2 (feet)
S = horizontal distance between well 1 and well 2 (feet)

The groundwater seepage velocity was calculated using the following formula:

$$V\mathrm{s} = ki/\mathrm{n_e}$$

Where:

Vs = Groundwater seepage velocity (feet/day)
k = hydraulic conductivity (feet/day)
i = horizontal hydraulic gradient (unitless)
$\mathrm{n_e}$ = effective porosity (percent)

The result for each semiannual event is presented separately in Sections 2.3.1 and 2.3.2. As presented, the estimated groundwater seepage velocity in the uppermost aquifer beneath the Unit is approximately 101 to 103 ft/year. This range represents a slight decrease from previous calculations and is attributed to the addition of hydraulic conductivity estimates from the recently installed monitoring wells MW-LF-01D, MW-LF-12, and MW-BG-74. The overall interpreted data indicates that the groundwater flow direction remains consistent with previous calculations for the Unit however, the velocity estimate is slightly lower. The groundwater monitoring network continues to monitor the uppermost aquifer in accordance with the CCR Rule.

2.3.1 First Semiannual 2023 Detection Monitoring Program

The groundwater potentiometric surface map for March 10, 2023, is presented in **Figure 4**. Using an estimated effective porosity value of 20% and an estimated average hydraulic conductivity value of 8.94 ft/day, the average rate of groundwater flow for the uppermost aquifer beneath the Unit was calculated to be 103.13 ft/year.

Well 1	Well 2	h^1 (ft)	h^2 (ft)	S (ft)	i	K (ft/day) (1)	n_e	Vs (ft/day)	Vs (ft/yr.)
MW-LF-01D	AS-LF-01	124.13	117.21	945	0.0073	8.94	0.20	0.3273	119.48
MW-LF-01D	AS-LF-02	124.13	116.26	910	0.0086			0.3866	141.11
MW-BG-74	MW-LF-22	123.58	113.30	2,015	0.0051			0.2281	83.24
AS-LF-03	MW-LF-10A	119.03	112.44	1,565	0.0042			0.1882	68.71
						Average		0.2833	103.13

1) Hydraulic conductivity and effective porosity values from February 2021: Analysis of Groundwater Flow Rate and Direction – Class III Landfill Wells (Nautilus 2021). Results from the March 2023 slug test conducted by TRC are also included in the hydraulic conductivity estimate (TRC 2023a).

2.3.2 Second Semiannual 2023 Detection Monitoring Program

The groundwater potentiometric surface map for October 10, 2023, is presented in **Figure 5**. Using an estimated effective porosity value of 20% and estimated average hydraulic conductivity value of 8.94 ft/day, the average rate of groundwater flow for the uppermost aquifer beneath the Unit was calculated to be 101.52 ft/year.

Well 1	Well 2	h^1 (ft)	h^2 (ft)	S (ft)	i	K (ft/day) (1)	n_e	Vs (ft/day)	Vs (ft/yr.)
MW-LF-01D	AS-LF-01	124.47	117.70	945	0.0072	8.94	0.20	0.3202	116.89
MW-LF-01D	AS-LF-02	124.47	116.67	910	0.0086			0.3832	139.85
MW-BG-74	MW-LF-22	123.70	113.51	2,015	0.0051			0.2261	82.51
AS-LF-03	MW-LF-10A	118.52	112.11	1,565	0.0041			0.1831	66.83
						Average		0.2781	101.52

1) Hydraulic conductivity and effective porosity values from February 2021: Analysis of Groundwater Flow Rate and Direction – Class III Landfill Wells (Nautilus 2021). Results from the March 2023 slug test conducted by TRC are also included in the hydraulic conductivity estimate (TRC 2023a).

Section 3
Field Activities

CCR-related groundwater sampling activities that occurred during 2023 are summarized in the following sections.

3.1 Compliance Monitoring Program Sampling Activities

As per 40 CFR §257.94(c), two semiannual DMP events were conducted for the constituents and parameters listed in Appendix III of the CCR Rule. Summaries of the 2023 DMP sampling events are presented below.

2023 Monitoring Event	Sample Dates	Final Laboratory Package Receipt Date
First Semiannual Detection Monitoring Program Event	March 14-15, 2023	March 29, 2023
Second Semiannual Detection Monitoring Program Event	October 10, 2023	November 20, 2023 (Revised December 1, 2023)

During each of the DMP sampling events, the compliance monitoring wells were sampled in accordance with the Station's Groundwater Monitoring Plan (GMP).

Samples collected during the semiannual sampling events were submitted to GEL Laboratories (GEL) in Charleston, South Carolina under proper chain-of-custody procedures. GEL is a SC DHEC Environmental Laboratory Certification Program (ELCP) accredited laboratory for analysis of CCR Rule constituents (GEL certification #10120001).

Section 4
Laboratory Analytical Results

Laboratory analytical results from the DMP sampling events conducted in 2023 are summarized in the following sections.

4.1 First Semiannual 2023 Detection Monitoring Program Event

The groundwater samples collected during the first semiannual DMP event were analyzed by GEL for the constituents and parameters listed in Appendix III of the CCR Rule. The laboratory certificates of analysis, chain-of-custody forms, and field notes for the sampling event are presented in **Appendix C**. A summary of the CCR sampling data for the Unit is included in **Table 2**.

4.2 Second Semiannual 2023 Detection Monitoring Program Event

The groundwater sampling collected during the second semiannual sampling event were analyzed by GEL for the constituents and parameters listed in Appendix III of the CCR Rule. The laboratory certificates of analysis, chain-of-custody forms, and field notes for the sampling event are presented in **Appendix D**. A summary of the CCR sampling data for the Unit is included in **Table 3**.

Section 5
Data Quality Validation

Third-party data validation services were provided by Environmental Standards, Inc. for the DMP sampling events. The reviews were performed with guidance from the USEPA data validation guidelines ~~and in accordance with the Station's GMP~~. A discussion of the findings is presented below.

5.1 First Semiannual 2023 Compliance Event Findings

The following field quality assurance (QA) and quality control (QC) samples for this event included:

- One blind duplicate sample was collected from MW-LF-10A on March 15, 2023.
- Additional sample volume was collected at MW-LF-07 on March 15, 2023, to allow for the laboratory to conduct a matrix spike (MS) and matrix spike duplicate (MSD) quality control check.
- A field blank was collected near MW-LF-10A on March 15, 2023, using laboratory provided deionized water. The field blank was used to assess potential contaminants from field conditions during sampling activities.

These QA/QC samples were analyzed for the same constituents as the groundwater samples. Based on review of the laboratory-provided QC data and Environmental Standards recommendations, the data for this sampling event were determined to meet the data quality objectives for the project. A copy of the data validation report is included in **Appendix C**.

5.2 Second Semiannual 2023 Compliance Event Findings

The following field QA/QC samples for this event included:

- One blind duplicate sample was collected from MW-LF-07 on October 10, 2023.
- Additional sample volume was collected at MW-LF-22 on October 10, 2023, to allow for the laboratory to conduct a MS/MSD quality control check.
- A field blank was collected at AS-LF-03 and MW-LF-10A on October 10, 2023, using laboratory provided deionized water. The field blank was used to assess potential contaminants from field conditions during sampling activities.

These QA/QC samples were analyzed for the same constituents as the groundwater samples. Based on review of the laboratory-provided QC data and Environmental Standards recommendations, the data for this sampling event were determined to meet the data quality objectives for the project. A copy of the data validation report is included in **Appendix D**.

Section 6
Statistical Evaluation of Groundwater Data

Statistical evaluation of the semiannual DMP data was performed in accordance with the statistical method certified by a qualified South Carolina-registered professional engineer. The certified statistical method has been posted to the Unit's operating record. Statistical evaluations completed in 2023 are summarized in the following sections.

6.1 Site-Specific Background Evaluations

Compliance data from each semiannual event was evaluated against site-specific background values as follows.

6.1.1 First Semiannual 2023 Compliance Event

Pursuant to 40 CFR §257.95, TRC evaluated Appendix III constituent detections against site-specific background values that were established for the DMP (**Appendix E**). Based on that evaluation, the following Appendix III SSIs were identified for the first semiannual 2023 event (**Table 2**):

- Chloride (MW-LF-07, MW-LF-11, and MW-LF-22)

An ASD and certification were prepared for these SSIs and is attached as **Appendix B**.

6.1.2 Second Semiannual 2023 Compliance Event

Pursuant to 40 CFR §257.95, TRC evaluated Appendix III constituent detections against site-specific background values that were established for the DMP (**Appendix F**). The specific background values were updated for the new certified network established in September 2023. Based on that evaluation, the following Appendix III SSIs were identified for the second semiannual 2023 event (**Table 3**):

- Chloride (MW-LF-07, MW-LF-11, MW-LF-12, and MW-LF-22)
- Fluoride (MW-LF-12)

Section 7
Conclusions

7.1 Findings

The first semiannual 2023 DMP compliance sampling event was conducted on March 14-15, 2023, with sample analyses completed on March 29, 2023. The second semiannual 2023 DMP compliance sampling event was conducted on October 10, 2023, with sample analyses complete on December 1, 2023. These groundwater sampling and analysis activities were performed in accordance with the requirements of the Unit's GMP for the CCR Rule network.

Evaluation of the monitoring results from the first semiannual 2023 event identified an exceedance above the background value for chloride in MW-LF-07, MW-LF-11, and MW-LF-22. A successful ASD was completed for the potential SSIs identified during the first semiannual 2023 detection monitoring event. The ASD was certified by a South Carolina-registered professional engineer and is presented in this Report (**Appendix B**). Monitoring results from the second semiannual 2023 event identified exceedances above the background value for chloride in MW-LF-07, MW-LF-11, MW-LF-12, and MW-LF-22 and fluoride at MW-LF-12.

7.2 Planned Activities

Based on the results from the 2023 monitoring activities, DESC intends to initiate the assessment monitoring program during the first quarter of 2024 for the Unit pursuant to 40 CFR §257.95.

Section 8
References

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Nautilus 2021. Analysis of Groundwater Flow Rate and Direction: September 2020 Monitoring Data, Cope Station: Class III Landfill, Wateree Station: Class III Landfill, FGD Pond, Ash Pond, Williams Station: FGD Pond, Highway 52 Class III Landfill: Nautilus Geologic Consulting, PLLC. February 2021.

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TRC 2023a. Groundwater Monitoring Well Installation Report, Wateree Station Class III Landfill. Richland County, South Carolina: TRC Environmental Corporation

TRC 2023b. Class III Landfill Groundwater Monitoring System Certification per 40 CFR 257.91 (f), Wateree Generating Station, Eastover, South Carolina. TRC, September 29, 2023.

TRC 2023c. Baseline Statistical Evaluation Report, Wateree Station Class III Landfill. Richland County, South Carolina: TRC Environmental Corporation

Section 9
Signature Page

This *2023 CCR Annual Groundwater Monitoring and Corrective Action Report* (Report) has been prepared by a qualified groundwater scientist on behalf of Dominion Energy South Carolina (DESC) for the Class III Industrial Landfill at Wateree Generating Station. This Report satisfied the reporting requirements specified in Title 40 CFR §257.90(e) *et seq.* [Disposal of Coal Combustion Residuals (CCR) from Electric Utilities (CCR Rule; Federal Register Vol. 80, No. 74, 21302-21501 on April 17, 2015, as amended)].

Name: Richard A. Mayer Jr., P.G. **Expiration Date:** June 30, 2025

Company: TRC Environmental Corporation **Date:** January 31, 2024

(SEAL)

Tables

Table 1
Summary of Historical CCR Static Water Level Data
Dominion Energy South Carolina - Wateree Station Class III Landfill
Eastover, Richland County, South Carolina

Monitoring Well ID	Top of Casing Elevation (ft. AMSL)	Date	Depth to Water (feet)	Static Water Level Elevation (ft. AMSL)
MW-LF-01	148.65	5/12/2016	22.48	126.17
		7/12/2016	22.48	126.17
		9/20/2016	22.82	125.83
		11/15/2016	22.94	125.71
		1/17/2017	23.02	125.63
		3/20/2017	22.73	125.92
		5/22/2017	22.40	126.25
		7/24/2017	22.46	126.19
		9/27/2017	22.75	125.90
		10/31/2017	22.90	125.75
		11/13/2017	22.94	125.71
		3/6/2018	23.78	124.87
		9/11/2018	24.85	123.80
		11/20/2018	26.80	121.85
		3/4/2019	23.68	124.97
		5/1/2019	23.21	125.44
		8/29/2019	23.48	125.17
		11/18/2019	23.98	124.67
		3/10/2020	23.78	124.87
		5/26/2020	24.61	124.04
		9/14/2020	23.55	125.10
		10/26/2020	23.49	125.16
		3/8/2021	22.90	125.75
		9/14/2021	22.43	126.22
		3/15/2022	23.76	124.89
		9/6/2022	24.30	124.35
		3/10/2023	24.90	123.75
		4/10/2023	24.72	123.93
		5/16/2023	24.45	124.20
		6/12/2023	24.35	124.30
		7/17/2023	24.31	124.34
		8/17/2023	24.30	124.35
		10/10/2023	24.45	124.20
MW-LF-01D	148.94	1/12/2023	24.96	123.98
		2/14/2023	25.11	123.83
		3/10/2023	24.81	124.13
		4/10/2023	24.47	124.47
		5/16/2023	24.46	124.48
		6/12/2023	24.33	124.61
		7/17/2023	24.32	124.62
		8/17/2023	24.30	124.64
		10/10/2023	24.47	124.47

Notes:
1) ft AMSL = feet above mean sea level.

Table 1
Summary of Historical CCR Static Water Level Data
Dominion Energy South Carolina - Wateree Station Class III Landfill
Eastover, Richland County, South Carolina

Monitoring Well ID	Top of Casing Elevation (ft. AMSL)	Date	Depth to Water (feet)	Static Water Level Elevation (ft. AMSL)
MW-LF-06	145.97	11/15/2016	29.25	116.72
		1/17/2017	29.45	116.52
		3/20/2017	29.28	116.69
		5/22/2017	28.98	116.99
		7/24/2017	28.82	117.15
		9/27/2017	28.99	116.98
		10/31/2017	29.06	116.91
		11/13/2017	29.05	116.92
		3/6/2018	29.87	116.10
		9/11/2018	30.94	115.03
		3/5/2019	30.08	115.89
		8/29/2019	29.45	116.52
		11/18/2019	29.81	116.16
		3/11/2020	30.10	115.87
		5/26/2020	30.05	115.92
		9/14/2020	29.86	116.11
		3/8/2021	29.51	116.46
		9/14/2021	28.13	117.84
		3/15/2022	29.76	116.21
		9/6/2022	30.44	115.53
		3/10/2023	31.09	114.88
		4/10/2023	31.07	114.90
		6/12/2023	30.59	115.38
		7/17/2023	30.52	115.45
		8/17/2023	30.42	115.55
		10/10/2023	34.00	111.97
MW-LF-07	139.98	5/12/2016	23.23	116.75
		7/12/2016	23.34	116.64
		9/20/2016	23.65	116.33
		11/16/2016	23.82	116.16
		1/18/2017	23.98	116.00
		3/21/2017	24.03	115.95
		5/23/2017	23.96	116.02
		7/24/2017	23.89	116.09
		9/27/2017	24.10	115.88
		10/31/2017	24.27	115.71
		11/14/2017	24.27	115.71
		3/5/2018	24.71	115.27
		9/11/2018	24.54	115.44
		11/20/2018	25.40	114.58
		3/5/2019	23.67	116.31
		5/1/2019	23.60	116.38
		8/29/2019	24.10	115.88
		11/19/2019	24.47	115.51
		3/11/2020	22.60	117.38
		5/26/2020	23.55	116.43
		9/15/2020	23.23	116.75
		10/26/2020	23.18	116.80
		3/8/2021	22.43	117.55
		9/14/2021	23.29	116.69
		3/15/2022	24.15	115.83
		9/6/2022	24.65	115.33
		3/10/2023	23.86	116.12
		4/10/2023	23.85	116.13
		5/16/2023	23.66	116.32
		6/12/2023	23.89	116.09
		7/17/2023	23.86	116.12
		8/17/2023	24.01	115.97
		10/10/2023	24.23	115.75

Notes:
1) ft AMSL = feet above mean sea level.

Table 1
Summary of Historical CCR Static Water Level Data
Dominion Energy South Carolina - Wateree Station Class III Landfill
Eastover, Richland County, South Carolina

Monitoring Well ID	Top of Casing Elevation (ft. AMSL)	Date	Depth to Water (feet)	Static Water Level Elevation (ft. AMSL)
MW-LF-08	137.67	5/12/2016	24.57	113.10
		7/12/2016	24.78	112.89
		9/20/2016	24.79	112.88
		11/16/2016	25.01	112.66
		1/18/2017	24.53	113.14
		3/21/2017	24.81	112.86
		5/23/2017	24.49	113.18
		7/25/2017	24.50	113.17
		9/27/2017	24.97	112.70
		10/31/2017	25.53	112.14
		11/14/2017	25.50	112.17
		3/5/2018	25.70	111.97
		9/11/2018	26.67	111.00
		3/4/2019	23.94	113.73
		8/29/2019	25.65	112.02
		3/11/2020	23.19	114.48
		9/15/2020	24.03	113.64
		3/8/2021	23.20	114.47
		9/14/2021	23.75	113.92
		3/15/2022	24.89	112.78
		9/6/2022	25.16	112.51
		3/10/2023	25.05	112.62
		4/10/2023	24.46	113.21
		5/16/2023	24.86	112.81
		6/12/2023	25.05	112.62
		7/17/2023	24.65	113.02
		8/17/2023	25.09	112.58
		10/10/2023	25.29	112.38
MW-LF-10	131.53	5/12/2016	15.94	115.59
		7/12/2016	17.53	114.00
		9/20/2016	18.27	113.26
		11/16/2016	18.50	113.03
		1/18/2017	18.05	113.48
		3/20/2017	17.85	113.68
		5/22/2017	17.59	113.94
		7/25/2017	18.01	113.52
		9/27/2017	18.61	112.92
		10/31/2017	19.00	112.53
		11/14/2017	19.15	112.38
		3/5/2018	19.32	112.21
		9/11/2018	19.53	112.00
		11/20/2018	18.78	112.75
		12/11/2018	18.53	113.00
		3/4/2019	17.34	114.19
		5/1/2019	17.55	113.98
		8/29/2019	19.37	112.16
		3/11/2020	17.42	114.11
		5/26/2020	18.09	113.44
		9/14/2020	18.30	113.23
		10/26/2020	18.09	113.44
		3/8/2021	16.90	114.63
		9/14/2021	18.38	113.15
		3/15/2022	19.19	112.34
		9/6/2022	19.61	111.92
		Abandoned December 16, 2022		

Notes:
1) ft AMSL = feet above mean sea level.

Table 1
Summary of Historical CCR Static Water Level Data
Dominion Energy South Carolina - Wateree Station Class III Landfill
Eastover, Richland County, South Carolina

Monitoring Well ID	Top of Casing Elevation (ft. AMSL)	Date	Depth to Water (feet)	Static Water Level Elevation (ft. AMSL)
MW-LF-10A	132.49	12/11/2018	19.72	112.77
		3/4/2019	18.54	113.95
		8/29/2019	20.54	111.95
		3/11/2020	18.65	113.84
		5/26/2020	19.37	113.12
		9/14/2020	19.48	113.01
		10/26/2020	19.24	113.25
		3/8/2021	18.05	114.44
		9/14/2021	19.73	112.76
		3/15/2022	20.40	112.09
		9/6/2022	20.83	111.66
		3/10/2023	20.05	112.44
		4/10/2023	19.67	112.82
		5/16/2023	19.49	113.00
		6/12/2023	19.77	112.72
		7/17/2023	19.69	112.80
		8/17/2023	20.03	112.46
		10/10/2023	20.38	112.11
MW-LF-11	135.26	5/12/2016	18.88	116.38
		7/12/2016	21.61	113.65
		9/20/2016	21.45	113.81
		11/16/2016	21.55	113.71
		1/17/2017	21.02	114.24
		3/20/2017	20.84	114.42
		5/22/2017	20.53	114.73
		7/25/2017	21.07	114.19
		9/27/2017	21.62	113.64
		10/31/2017	22.00	113.26
		11/14/2017	22.20	113.06
		3/5/2018	22.52	112.74
		9/11/2018	22.53	112.73
		3/4/2019	20.15	115.11
		5/1/2019	20.30	114.96
		8/28/2019	22.30	112.96
		3/11/2020	20.09	115.17
		9/14/2020	21.35	113.91
		3/8/2021	19.57	115.69
		9/14/2021	21.54	113.72
		3/15/2022	22.17	113.09
		9/6/2022	22.72	112.54
		3/10/2023	21.77	113.49
		4/10/2023	21.28	113.98
		5/16/2023	21.14	114.12
		6/12/2023	21.53	113.73
		7/17/2023	21.51	113.75
		8/17/2023	21.83	113.43
		10/10/2023	22.17	113.09

Notes:
1) ft AMSL = feet above mean sea level.

Table 1
Summary of Historical CCR Static Water Level Data
Dominion Energy South Carolina - Wateree Station Class III Landfill
Eastover, Richland County, South Carolina

Monitoring Well ID	Top of Casing Elevation (ft. AMSL)	Date	Depth to Water (feet)	Static Water Level Elevation (ft. AMSL)
MW-LF-12	146.10	1/12/2023	32.65	113.45
		2/14/2023	32.91	113.19
		3/10/2023	32.30	113.80
		4/10/2023	32.13	113.97
		5/16/2023	31.96	114.14
		6/12/2023	32.03	114.07
		7/17/2023	31.85	114.25
		8/17/2023	31.99	114.11
		10/10/2023	32.05	114.05
MW-LF-22	135.75	5/12/2016	20.98	114.77
		7/12/2016	21.61	114.14
		9/20/2016	22.13	113.62
		11/16/2016	22.32	113.43
		1/18/2017	21.70	114.05
		3/20/2017	21.77	113.98
		5/23/2017	21.48	114.27
		7/25/2017	21.72	114.03
		9/26/2017	22.38	113.37
		10/31/2017	22.94	112.81
		11/14/2017	22.96	112.79
		3/5/2018	23.02	112.73
		9/11/2018	23.64	112.11
		3/4/2019	20.97	114.78
		5/1/2019	21.45	114.30
		8/29/2019	23.23	112.52
		11/18/2019	23.61	112.14
		3/11/2020	20.75	115.00
		5/26/2020	21.88	113.87
		9/14/2020	21.87	113.88
		10/27/2020	21.57	114.18
		3/8/2021	20.76	114.99
		9/14/2021	21.83	113.92
		3/15/2022	22.59	113.16
		9/6/2022	22.82	112.93
		3/10/2023	22.45	113.30
		4/10/2023	21.90	113.85
		5/16/2023	22.10	113.65
		6/12/2023	22.24	113.51
		7/17/2023	22.07	113.68
		8/17/2023	22.52	113.23
		10/10/2023	22.24	113.51

Notes:
1) ft AMSL = feet above mean sea level.

Table 1
Summary of Historical CCR Static Water Level Data
Dominion Energy South Carolina - Wateree Station Class III Landfill
Eastover, Richland County, South Carolina

Monitoring Well ID	Top of Casing Elevation (ft. AMSL)	Date	Depth to Water (feet)	Static Water Level Elevation (ft. AMSL)
AS-LF-01	149.90	7/25/2017	30.58	119.32
		9/12/2017	30.49	119.41
		9/27/2017	30.63	119.27
		10/10/2017	30.65	119.25
		11/1/2017	30.90	119.00
		11/13/2017	30.80	119.10
		3/6/2018	31.57	118.33
		9/11/2018	32.84	117.06
		3/5/2019	31.81	118.09
		5/1/2019	31.36	118.54
		8/28/2019	31.10	118.80
		3/11/2020	31.39	118.51
		5/27/2020	31.36	118.54
		9/15/2020	31.55	118.35
		10/26/2020	31.36	118.54
		3/8/2021	30.90	119.00
		9/14/2021	29.96	119.94
		3/15/2022	31.44	118.46
		9/6/2022	32.10	117.80
		3/10/2023	32.69	117.21
		4/10/2023	32.66	117.24
		6/12/2023	32.09	117.81
		7/17/2023	32.23	117.67
		8/17/2023	32.18	117.72
		10/10/2023	32.20	117.70
AS-LF-02	149.55	7/25/2017	31.32	118.23
		9/12/2017	31.18	118.37
		9/27/2017	31.40	118.15
		10/10/2017	31.51	118.04
		11/1/2017	31.09	118.46
		11/13/2017	31.57	117.98
		3/6/2018	32.17	117.38
		9/11/2018	33.45	116.10
		3/5/2019	31.37	118.18
		5/1/2019	31.86	117.69
		8/29/2019	32.29	117.26
		11/19/2019	32.47	117.08
		3/11/2020	32.18	117.37
		5/27/2020	31.99	117.56
		9/15/2020	31.94	117.61
		10/26/2020	31.78	117.77
		3/8/2021	31.25	118.30
		9/14/2021	30.89	118.66
		3/15/2022	32.15	117.40
		9/6/2022	32.88	116.67
		3/10/2023	33.29	116.26
		4/10/2023	33.20	116.35
		5/16/2023	32.95	116.60
		6/12/2023	32.75	116.80
		7/17/2023	32.84	116.71
		8/17/2023	32.86	116.69
		10/10/2023	32.88	116.67

Notes:
1) ft AMSL = feet above mean sea level.

Table 1
Summary of Historical CCR Static Water Level Data
Dominion Energy South Carolina - Wateree Station Class III Landfill
Eastover, Richland County, South Carolina

Monitoring Well ID	Top of Casing Elevation (ft. AMSL)	Date	Depth to Water (feet)	Static Water Level Elevation (ft. AMSL)
AS-LF-03	146.15	7/25/2017	25.80	120.35
		9/12/2017	26.30	119.85
		9/27/2017	26.52	119.63
		10/10/2017	26.81	119.34
		11/1/2017	27.20	118.95
		11/13/2017	27.20	118.95
		3/6/2018	27.69	118.46
		9/11/2018	28.21	117.94
		11/20/2018	26.96	119.19
		3/4/2019	25.07	121.08
		5/1/2019	25.50	120.65
		8/28/2019	27.50	118.65
		11/19/2019	28.69	117.46
		3/10/2020	25.19	120.96
		9/14/2020	26.65	119.50
		10/27/2020	26.20	119.95
		3/8/2021	24.54	121.61
		9/14/2021	26.49	119.66
		3/15/2022	27.30	118.85
		9/6/2022	28.01	118.14
		3/10/2023	27.12	119.03
		4/10/2023	26.40	119.75
		5/16/2023	26.56	119.59
		6/12/2023	26.85	119.30
		7/17/2023	26.87	119.28
		8/17/2023	27.24	118.91
		10/10/2023	27.63	118.52

Notes:
1) ft AMSL = feet above mean sea level.

Table 1
Summary of Historical CCR Static Water Level Data
Dominion Energy South Carolina - Wateree Station Class III Landfill
Eastover, Richland County, South Carolina

Monitoring Well ID	Top of Casing Elevation (ft. AMSL)	Date	Depth to Water (feet)	Static Water Level Elevation (ft. AMSL)
MW-BG-73	141.57	3/6/2018	11.20	130.37
		9/10/2018	13.28	128.29
		11/20/2018	9.02	132.55
		3/5/2019	7.81	133.76
		5/1/2019	10.05	131.52
		8/28/2019	14.60	126.97
		11/18/2019	13.11	128.46
		3/11/2020	8.21	133.36
		5/26/2020	11.56	130.01
		9/15/2020	11.71	129.86
		10/26/2020	9.88	131.69
		3/8/2021	5.69	135.88
		9/14/2021	10.36	131.21
		3/15/2022	7.52	134.05
		9/6/2022	9.72	131.85
		3/10/2023	6.75	134.82
		4/10/2023	5.68	135.89
		5/16/2023	8.08	133.49
		6/12/2023	8.91	132.66
		7/17/2023	8.57	133.00
		8/17/2023	11.02	130.55
		10/10/2023	11.16	130.41
MW-BG-74	148.51	1/12/2023	25.38	123.13
		2/13/2023	25.06	123.45
		3/10/2023	24.80	123.71
		4/10/2023	24.49	124.02
		5/16/2023	24.31	124.20
		6/12/2023	24.31	124.20
		7/17/2023	24.35	124.16
		8/17/2023	24.46	124.05
		10/10/2023	24.81	123.70

Notes:
1) ft AMSL = feet above mean sea level.

Table 2
Summary of First Semiannual 2023 Detection Monitoring Program Sampling Event Data
Dominion Energy South Carolina - Wateree Station Class III Landfill
Eastover, Richland County, South Carolina

			Background Wells												Downgradient Well			
		Sample ID:	MW-BG-73				MW-LF-01				MW-LF-06				MW-LF-07			
		Sample Date:	03/15/2023				03/15/2023				03/15/2023				03/15/2023			
Parameter Name	**Units**	**Background Threshold Values**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**
CCR Appendix III																		
Boron	µg/L	77	**6.60**	J	4.00	15.0	**8.89**	J	4.00	15.0	**5.56**	J	4.00	15.0	**6.23**	J	4.00	15.0
Calcium	µg/L	6,670	**302**		30.0	100	**166**		30.0	100	**868**		30.0	100	**999**		30.0	100
Chloride	mg/L	9.14	2.40	U	2.40	2.40	**8.22**		0.0670	0.200	**7.00**		0.0670	0.200	**9.74**		0.0670	0.200
Fluoride	mg/L	0.1	0.0330	U	0.0330	0.100	**0.0384**	J	0.0330	0.100	0.0330	U	0.0330	0.100	**0.0386**	J	0.0330	0.100
pH	SU	2.5 - 6.2	4.65		0.01	0.01	4.34		0.01	0.01	4.63		0.01	0.01	4.45		0.01	0.01
Sulfate	mg/L	7.89	**0.265**	J	0.133	0.400	**0.362**	J	0.133	0.400	**0.408**		0.133	0.400	**2.61**		0.133	0.400
Total Dissolved Solids	mg/L	127	2.38	U	2.38	10.0	**16.0**	J	2.38	10.0	**19.0**	J	2.38	10.0	**8.00**	J	2.38	10.0
Field Parameters																		
Conductivity	µS/cm	--	22.99		0.1	0.1	55.96		0.1	0.1	50.96		0.1	0.1	73.18		0.1	0.1
Dissolved Oxygen	mg/L	--	6.17		0.01	0.01	6.41		0.01	0.01	7.70		0.01	0.01	7.45		0.01	0.01
Oxidation Reduction Potential	millivolts	--	163.3		0.1	0.1	190.4		0.1	0.1	190.0		0.1	0.1	180.3		0.1	0.1
Temperature	C	--	18.44		0.01	0.01	16.67		0.01	0.01	13.37		0.01	0.01	19.31		0.01	0.01
Turbidity	NTU	--	11.53		0.1	0.1	3.11		0.1	0.1	3.66		0.1	0.1	2.80		0.1	0.1

Notes:
MDL = Method Detection Limit
QL = Quantification Limit
mg/L = Milligram per liter
µg/L = Microgram per liter
µS/cm = MicroSiemen per centimeter
SU = Standard Units
C = Degrees Celsius
NTU = Nephelometric Turbidity Unit

Qualifiers (Qual)
J = Estimated Results
U = Samples reported below their respective MDL

= Concentration greater than Background Threshold Values

Bold font = Detected constituent

Table 2
Summary of First Semiannual 2023 Detection Monitoring Program Sampling Event Data
Dominion Energy South Carolina - Wateree Station Class III Landfill
Eastover, Richland County, South Carolina

			Downgradient Wells																			
		Sample ID:	MW-LF-08				MW-LF-10A				MW-LF-10A Duplicate				MW-LF-11				MW-LF-22			
		Sample Date:	03/15/2023				03/15/2023				03/15/2023				03/15/2023				03/14/2023			
Parameter Name	**Units**	**Background Threshold Values**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**
CCR Appendix III																						
Boron	µg/L	77	**6.86**	J	4.00	15.0	**5.12**	J	4.00	15.0	**5.66**	J	4.00	15.0	**5.90**	J	4.00	15.0	**9.49**	J	4.00	15.0
Calcium	µg/L	6,670	**835**		30.0	100	**1080**		30.0	100	**982**		30.0	100	**348**		30.0	100	**2130**		30.0	100
Chloride	mg/L	9.14	**5.36**	J+	0.0670	0.200	**4.98**	J+	0.0670	0.200	**5.18**	J+	0.0670	0.200	**9.16**		0.0670	0.200	**11.0**		0.134	0.400
Fluoride	mg/L	0.1	0.0330	U	0.0330	0.100	**0.0379**	J	0.0330	0.100	**0.0394**	J	0.0330	0.100	0.0330	U	0.0330	0.100	**0.0411**	J	0.0330	0.100
pH	SU	2.5 - 6.2	4.55		0.01	0.01	4.62		0.01	0.01	--		--	--	4.55		0.01	0.01	4.43		0.01	0.01
Sulfate	mg/L	7.89	**0.334**	J	0.133	0.400	**2.60**		0.133	0.400	**2.59**		0.133	0.400	**0.279**	J	0.133	0.400	**1.13**		0.133	0.400
Total Dissolved Solids	mg/L	127	**13.0**	J	2.38	10.0	**8.00**	J	2.38	10.0	**11.0**	J	2.38	10.0	**19.0**	J	2.38	10.0	**34.0**	J	2.38	10.0
Field Parameters																						
Conductivity	µS/cm	--	42.52		0.1	0.1	44.36		0.1	0.1	--		--	--	66.10		0.1	0.1	85.24		0.1	0.1
Dissolved Oxygen	mg/L	--	9.12		0.01	0.01	5.68		0.01	0.01	--		--	--	7.70		0.01	0.01	2.67		0.01	0.01
Oxidation Reduction Potential	millivolts	--	190.4		0.1	0.1	187.3		0.1	0.1	--		--	--	245.9		0.1	0.1	484.5		0.1	0.1
Temperature	C	--	20.25		0.01	0.01	17.09		0.01	0.01	--		--	--	17.14		0.01	0.01	19.88		0.01	0.01
Turbidity	NTU	--	3.27		0.1	0.1	3.29		0.1	0.1	--		--	--	8.12		0.1	0.1	4.00		0.1	0.1

Notes:
MDL = Method Detection Limit
QL = Quantification Limit
mg/L = Milligram per liter
µg/L = Microgram per liter
µS/cm = MicroSiemen per centimeter
SU = Standard Units
C = Degrees Celsius
NTU = Nephelometric Turbidity Unit

Qualifiers (Qual)
J = Estimated Results
U = Samples reported below their respective MDL
J+ = Estimated Results, biased high
= Concentration greater than Background Threshold Values

Bold font = Detected constituent

Table 3
Summary of Second Semiannual 2023 Detection Monitoring Program Sampling Event Data
Dominion Energy South Carolina - Wateree Station Class III Landfill
Eastover, Richland County, South Carolina

			Background Wells												Downgradient Wells											
		Sample ID:	MW-LF-01D				MW-BG-74				AS-LF-03				MW-LF-07				MW-LF-07 Duplicate				MW-LF-08			
		Sample Date:	10/10/2023				10/10/2023				10/10/2023				10/10/2023				10/10/2023				10/10/2023			
Parameter Name	**Units**	**Background Threshold Values**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**
CCR Appendix III																										
Boron	µg/L	14.0	**5.26**	J	4.00	15.0	**6.50**	J	4.00	15.0	**6.62**	J	4.00	15.0	**7.05**	J	4.00	15.0	**6.32**	J	4.00	15.0	**5.75**	J	4.00	15.0
Calcium	µg/L	5,080	**676**		30.0	100	**1760**		30.0	100	**853**		30.0	100	**784**		30.0	100	**765**		30.0	100	**849**		30.0	100
Chloride	mg/L	7.78	**6.75**		0.0670	0.200	**3.97**		0.0670	0.200	**6.22**		0.0670	0.200	**8.07**		0.0670	0.200	**8.03**		0.0670	0.200	**4.86**		0.0670	0.200
Fluoride	mg/L	0.111	0.0330	U	0.0330	0.100	**0.0792**	J	0.0330	0.100	**0.0408**	J	0.0330	0.100	0.0330	U	0.0330	0.100	**0.0713**	J	0.0330	0.100	0.0330	U	0.0330	0.100
pH	SU	3.0 - 6.6	4.65		0.01	0.01	4.85		0.01	0.01	4.31		0.01	0.01	4.41		0.01	0.01	--		--	--	4.65		0.01	0.01
Sulfate	mg/L	15.3	**0.461**		0.133	0.400	**1.16**		0.133	0.400	**0.535**		0.133	0.400	**5.84**		0.133	0.400	**5.73**		0.133	0.400	**0.350**	J	0.133	0.400
Total Dissolved Solids	mg/L	56.8	**17.0**	J	2.38	10.0	**18.0**	J	2.38	10.0	2.38	UJ	2.38	10.0	**16.0**	J	2.38	10.0	**8.00**	J	2.38	10.0	**10.0**	J	2.38	10.0
Field Parameters																										
Conductivity	µS/cm	--	50.23		0.1	0.1	36.84		0.1	0.1	59.15		0.1	0.1	69.52		0.1	0.1	--		--	--	43.04		0.1	0.1
Dissolved Oxygen	mg/L	--	4.9		0.01	0.01	5.43		0.01	0.01	6.99		0.01	0.01	7.25		0.01	0.01	--		--	--	7.3		0.01	0.01
Oxidation Reduction Potential	millivolts	--	181.9		0.1	0.1	204.6		0.1	0.1	227.1		0.1	0.1	176.7		0.1	0.1	--		--	--	160.4		0.1	0.1
Temperature	C	--	21.59		0.01	0.01	23.69		0.01	0.01	23.67		0.01	0.01	23.7		0.01	0.01	--		--	--	24.24		0.01	0.01
Turbidity	NTU	--	0.29		0.1	0.1	5.08		0.1	0.1	0.82		0.1	0.1	3.52		0.1	0.1	--		--	--	0.84		0.1	0.1

Notes:
MDL = Method Detection Limit
QL = Quantification Limit
mg/L = Milligram per liter
µg/L = Microgram per liter
µS/cm = MicroSiemen per centimeter
SU = Standard Units
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Qualifiers (Qual)
J = Estimated Results
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= Concentration greater than Background Threshold Values

Bold font = Detected constituent

Table 3
Summary of Second Semiannual 2023 Detection Monitoring Program Sampling Event Data
Dominion Energy South Carolina - Wateree Station Class III Landfill
Eastover, Richland County, South Carolina

			Downgradient Wells																			
		Sample ID:	MW-LF-10A				MW-LF-11				MW-LF-12				MW-LF-22				AS-LF-02			
		Sample Date:	10/10/2023				10/10/2023				10/10/2023				10/10/2023				10/10/2023			
Parameter Name	**Units**	**Background Threshold Values**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**
CCR Appendix III																						
Boron	µg/L	14.0	**6.90**	J	4.00	15.0	**6.87**	J	4.00	15.0	**6.65**	J	4.00	15.0	**9.97**	J	4.00	15.0	**8.72**	J	4.00	15.0
Calcium	µg/L	5,080	**472**		30.0	100	**445**		30.0	100	**1820**		30.0	100	**2170**		30.0	100	**891**		30.0	100
Chloride	mg/L	7.78	**3.88**		0.0670	0.200	**11.9**		0.134	0.400	**8.68**		0.0670	0.200	**10.1**		0.134	0.400	**2.60**		0.0670	0.200
Fluoride	mg/L	0.111	0.0330	U	0.0330	0.100	0.0330	U	0.0330	0.100	**0.112**		0.0330	0.100	0.0330	U	0.0330	0.100	**0.0647**	J	0.0330	0.100
pH	SU	3.0 - 6.6	4.52		0.01	0.01	4.59		0.01	0.01	4.33		0.01	0.01	4.27		0.01	0.01	4.58		0.01	0.01
Sulfate	mg/L	15.3	**1.24**		0.133	0.400	**0.347**	J	0.133	0.400	**0.408**		0.133	0.400	**1.09**		0.133	0.400	**2.12**		0.133	0.400
Total Dissolved Solids	mg/L	56.8	2.38	UJ	2.38	10.0	**24.0**	J	2.38	10.0	**15.0**	J	2.38	10.0	**17.0**	J	2.38	10.0	**5.00**	J	2.38	10.0
Field Parameters																						
Conductivity	µS/cm	--	36.38		0.1	0.1	71.65		0.1	0.1	65.74		0.1	0.1	84.31		0.1	0.1	29.74		0.1	0.1
Dissolved Oxygen	mg/L	--	4.96		0.01	0.01	7.28		0.01	0.01	7.18		0.01	0.01	2.98		0.01	0.01	3.00		0.01	0.01
Oxidation Reduction Potential	millivolts	--	210.6		0.1	0.1	537.6		0.1	0.1	215.1		0.1	0.1	587.2		0.1	0.1	210.7		0.1	0.1
Temperature	C	--	23.96		0.01	0.01	23.05		0.01	0.01	26.91		0.01	0.01	25.51		0.01	0.01	26.06		0.01	0.01
Turbidity	NTU	--	3.3		0.1	0.1	1.06		0.1	0.1	8.66		0.1	0.1	0.96		0.1	0.1	1.06		0.1	0.1

Notes:
MDL = Method Detection Limit
QL = Quantification Limit
mg/L = Milligram per liter
µg/L = Microgram per liter
µS/cm = MicroSiemen per centimeter
SU = Standard Units
C = Degrees Celsius
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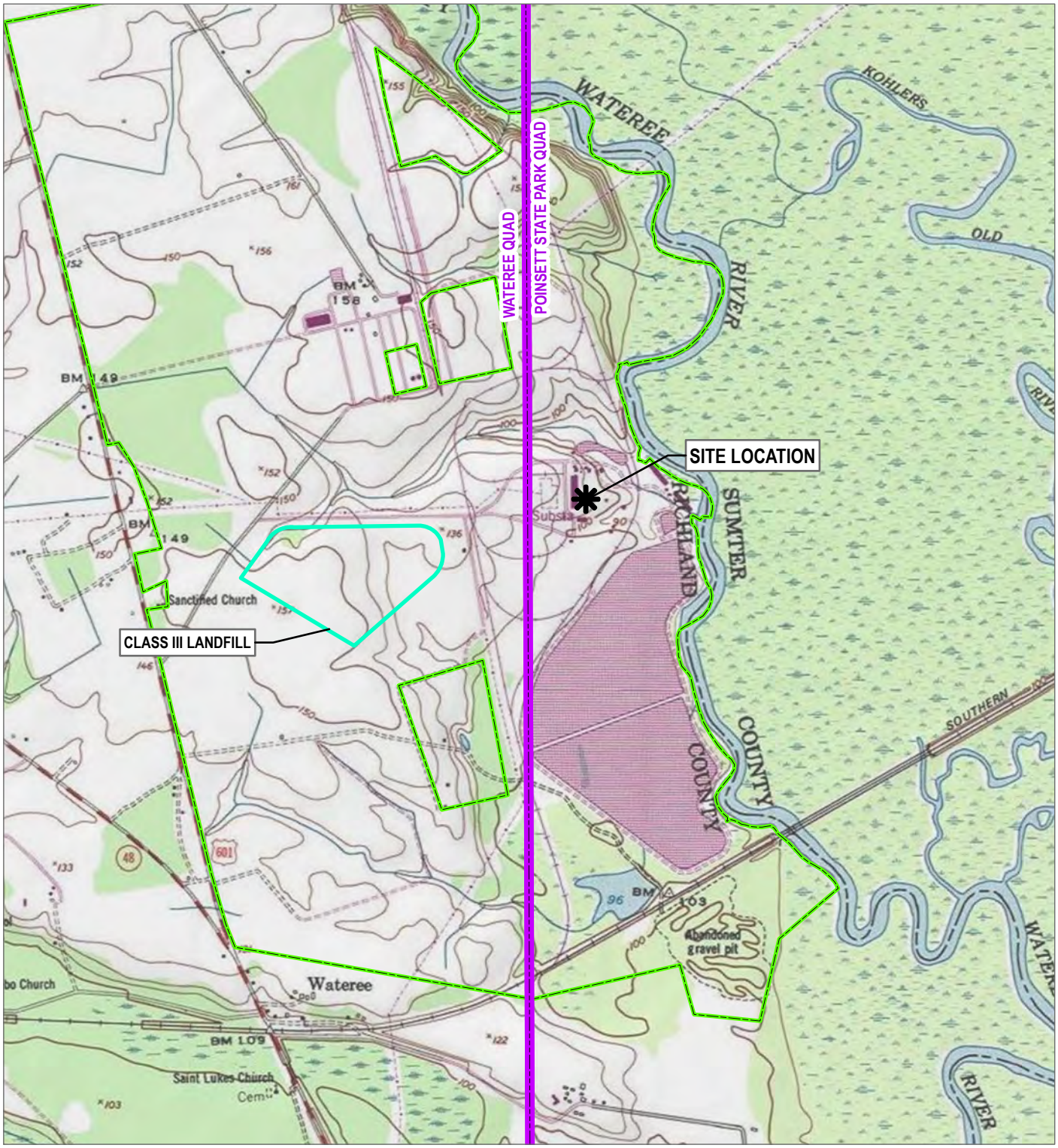
Qualifiers (Qual)
J = Estimated Results
U = Samples reported below their respective MDL
J+ = Estimated Results, biased high
= Concentration greater than Background Threshold Values

Bold font = Detected constituent

Figures



LEGEND

- SITE LOCATION
- USGS 24K QUAD BOUNDARY
- CLASS III LANDFILL BOUNDARY
- PROPERTY BOUNDARY

BASE MAP: USA TOPO MAPS MAP SERVICE
DATA SOURCES: TRC

N

0 1,000 2,000
FEET
1:24,000 1" = 2,000'

PROJECT:
DESC WATEREE STATION
CLASS III LANDFILL
EASTOVER, SOUTH CAROLINA

TITLE:
SITE LOCATION MAP

DRAWN BY:	L. LILL	PROJ. NO.:	416559.0005.0000
CHECKED BY:	J. YONTS		
APPROVED BY:	R. MAYER		**FIGURE 1**
DATE:	JANUARY 2024		

TRC
50 INTERNATIONAL DRIVE
PATEWOOD PLAZA THREE, SUITE 150
GREENVILLE, SC 29615
PHONE: 864.281.0030

FILE: 2023_FIGURES

LEGEND

- CCR BACKGROUND MONITORING WELL
- CCR DOWNGRADIENT MONITORING WELL
- NEW MONITORING WELL INSTALLATION LOCATION
- EVENT PIEZOMETER
- CLASS III LANDFILL BOUNDARY
- PROPERTY BOUNDARY

NOTES:

1. AERIAL IMAGE FROM ESRI WORLD IMAGERY DATED APRIL, 2021.

N

1:4,800
1" = 400'
0 200 400 FEET

PROJECT:
DESC WATEREE STATION
CLASS III LANDFILL
EASTOVER, SOUTH CAROLINA

TITLE:
CCR RULE COMPLIANCE MONITORING WELL NETWORK - MARCH 2023

DRAWN BY:	L. LILL	PROJ. NO.:	416559.0005.0000
CHECKED BY:	J. YONTS		
APPROVED BY:	R. MAYER		**FIGURE 2**
DATE:	JANUARY 2024		

TRC
50 INTERNATIONAL DRIVE
PATEWOOD PLAZA THREE, SUITE 150
GREENVILLE, SC 29615
PHONE: 864.281.0030

FILE: 2023_Figures.aprx

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Layout Name: Fig02_Wateree_CCR_Rule_Compliance_MW_Network_Mar2023

LEGEND

- CCR BACKGROUND MONITORING WELL
- CCR DOWNGRADIENT MONITORING WELL
- EVENT PIEZOMETER
- CLASS III LANDFILL BOUNDARY
- PROPERTY BOUNDARY

NOTES:

1. AERIAL IMAGE FROM ESRI WORLD IMAGERY DATED APRIL, 2021.

1:4,800
1" = 400'
0 200 400 FEET

PROJECT:
DESC WATEREE STATION
CLASS III LANDFILL
EASTOVER, SOUTH CAROLINA

TITLE:
CCR RULE COMPLIANCE MONITORING WELL NETWORK - OCTOBER 2023

DRAWN BY:	L. LILL	PROJ. NO.:	416559.0005.0000
CHECKED BY:	J. YONTS		**FIGURE 3**
APPROVED BY:	R. MAYER		
DATE:	JANUARY 2024		

TRC
50 INTERNATIONAL DRIVE
PATEWOOD PLAZA THREE, SUITE 150
GREENVILLE, SC 29615
PHONE: 864.281.0030

FILE: 2023_Figures.aprx

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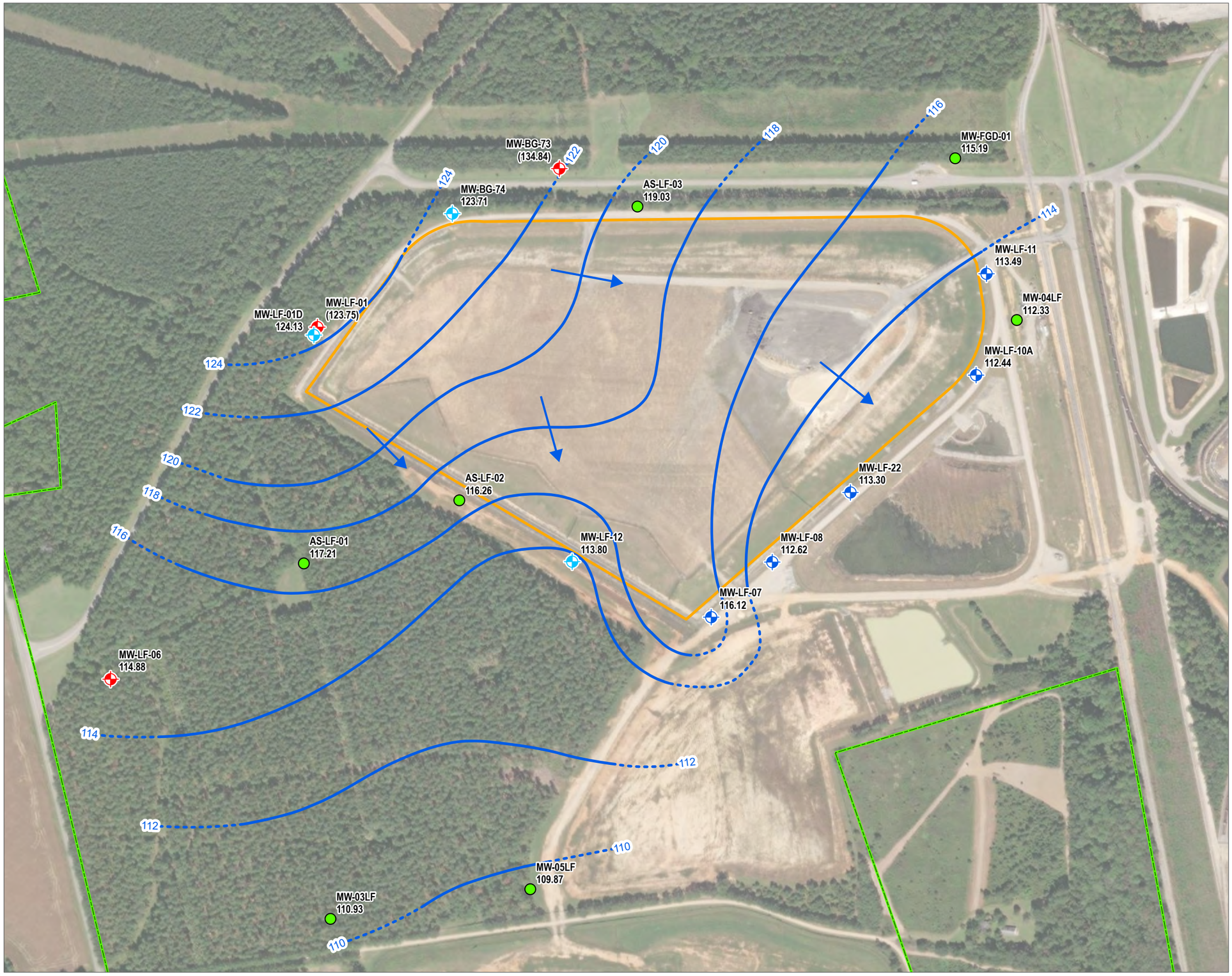

LEGEND

- CCR BACKGROUND MONITORING WELL
- CCR DOWNGRADIENT MONITORING WELL
- NEW MONITORING WELL INSTALLATION LOCATION
- EVENT PIEZOMETER
- CLASS III LANDFILL BOUNDARY
- PROPERTY BOUNDARY
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- WATER TABLE ELEVATION IN FEET ABOVE MEAN SEA LEVEL (2' CONTOUR INTERVALS) - DASHED WHERE INFERRED
- **114.88** WATER ELEVATION (FT. MSL)

NOTES:

1. AERIAL IMAGE FROM ESRI WORLD IMAGERY DATED APRIL, 2021.
2. ELEVATIONS SHOWN IN PARENTHESE ARE BELOW WATER TABLE OR WERE CONSIDERED AS INACCURATE, AND WERE NOT USED IN THE PREPARATION OF THIS MAP.

1:4,800

1" = 400'

0 200 400 FEET

PROJECT:	DESC WATEREE STATION CLASS III LANDFILL EASTOVER, SOUTH CAROLINA
TITLE:	GROUNDWATER POTENTIOMETRIC MAP - MARCH 10, 2023

DRAWN BY:	L. LILL	PROJ. NO.:	416559.0005.0000
CHECKED BY:	J. YONTS		FIGURE 4
APPROVED BY:	R. MAYER		
DATE:	JANUARY 2024		

TRC
50 INTERNATIONAL DRIVE
PATEWOOD PLAZA THREE, SUITE 150
GREENVILLE, SC 29615
PHONE: 864.281.0030

FILE: 2023_Figures.aprx

Coordinate System: NAD 1983 StatePlane South Carolina FIPS 3900 Feet; Map Rotation: 0
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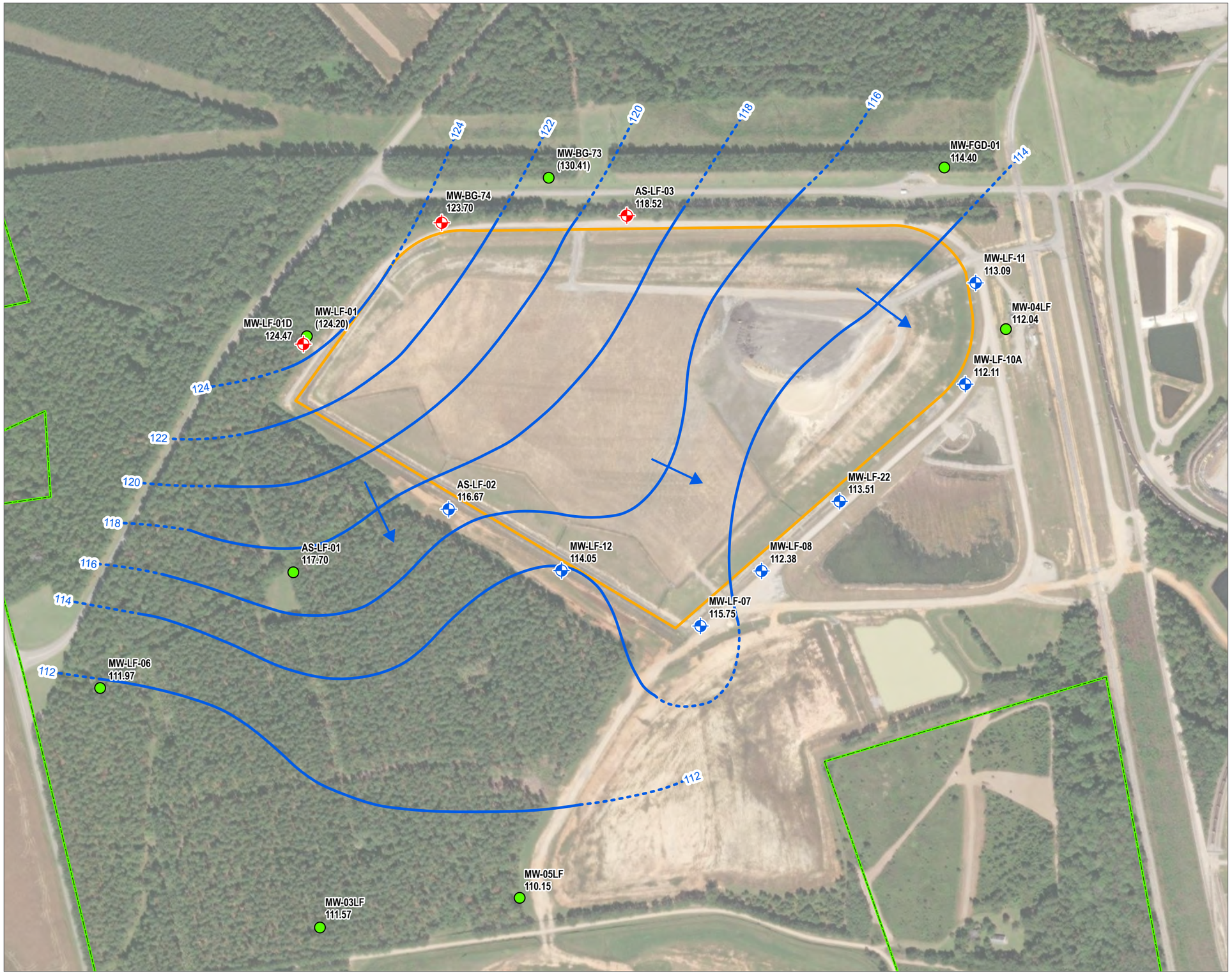

LEGEND

- CCR BACKGROUND MONITORING WELL
- CCR DOWNGRADIENT MONITORING WELL
- EVENT PIEZOMETER
- CLASS III LANDFILL BOUNDARY
- PROPERTY BOUNDARY
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- WATER TABLE ELEVATION IN FEET ABOVE MEAN SEA LEVEL (2' CONTOUR INTERVALS) - DASHED WHERE INFERRED
- **112.38** WATER ELEVATION (FT. MSL)

NOTES:

1. AERIAL IMAGE FROM ESRI WORLD IMAGERY DATED APRIL, 2021.
2. ELEVATIONS SHOWN IN PARENTHESE ARE BELOW WATER TABLE OR WERE CONSIDERED AS INACCURATE, AND WERE NOT USED IN THE PREPARATION OF THIS MAP.

1:4,800
1" = 400'
0 200 400
FEET

PROJECT:
DESC WATEREE STATION
CLASS III LANDFILL
EASTOVER, SOUTH CAROLINA

TITLE:
GROUNDWATER POTENTIOMETRIC MAP - OCTOBER 10, 2023

DRAWN BY:	L. LILL	PROJ. NO.:	416559.0005.0000
CHECKED BY:	J. YONTS		**FIGURE 5**
APPROVED BY:	R. MAYER		
DATE:	JANUARY 2024		

TRC
50 INTERNATIONAL DRIVE
PATEWOOD PLAZA THREE, SUITE 150
GREENVILLE, SC 29615
PHONE: 864.281.0030

FILE: 2023_Figures.aprx

Appendix A
September 2022 Alternate Source Demonstration

DOMINION ENERGY SOUTH CAROLINA

WATEREE STATION CLASS III LANDFILL

RICHLAND COUNTY, SOUTH CAROLINA

EPA CCR RULE COMPLIANCE

ALTERNATE SOURCE DEMONSTRATION REPORT

Second Semiannual 2022 Detection Monitoring Event

March 23, 2023

Nakia W. Addison, P.E.
Senior Engineer

Richard A. Mayer Jr., P. G.
Project Hydrogeologist

50 INTERNATIONAL DRIVE, SUITE 150, GREENVILLE, SC 29615, ● 864.281.0030 PHONE ● 864.281.0288 FAX ● WWW.TRCCOMPANIES.COM

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Executive Summary

Dominion Energy South Carolina (DESC) completed the most recent semiannual detection monitoring sampling (second semiannual 2022 sampling event) in September 2022 for the Wateree Generating Station (Station) Class III Landfill (Unit) pursuant to the *Criteria for Classification of Solid Waste Disposal Facilities and Practices; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule*, 40 CFR Part 257 (CCR Rule). The Unit constitutes a coal combustion residuals (CCR) Unit per the CCR Rule. Per 40 CFR §257.94, the samples were analyzed for the Appendix III detection monitoring parameters. Upon receipt of the laboratory analytical results, statistical analysis was performed and evaluated for potential statistically significant increases (SSI) above background concentrations.

The following SSIs above the background concentrations were identified based on direct comparisons made between the statistically derived background threshold values (95 percent upper prediction limit) and the downgradient monitoring results:

- MW-LF-10: sulfate
- MW-LF-22: chloride

The information provided in this report serves as DESC's Alternate Source Demonstration (ASD) prepared in accordance with 40 CFR §257.94(e)(2) and successfully demonstrates that the SSIs are not due to a release from the Unit to groundwater, but are due to the following:

- Potential compromised surface completion at MW-LF-10.
- Natural variation in groundwater quality within the area.

Therefore, based on the information provided in this ASD report, DESC will continue to conduct semiannual detection monitoring for Appendix III constituents in accordance with 40 CFR §257.94 at the certified groundwater monitoring well system (Certified Monitoring Well Network) for the CCR Unit.

Section 1
Introduction

1.1 Background

Dominion Energy South Carolina (DESC) operates the Wateree Generating Station (Station), a coal-fired steam power plant, to generate electricity. The Station is located at 142 Wateree Station Road in Eastover, Richland County, South Carolina as shown on **Figure 1**. Coal combustion residuals (CCR) are produced as part of the electrical generation operations. The Station has been generating and disposing of CCR on-site in a coal ash disposal landfill (Unit) since it began operations in 2008. The Unit is a Class 3 non-commercial industrial landfill and operates under South Carolina Department of Health and Environmental Control (SCDHEC) Solid Waste Permit No. LF-3-00026.

The on-site Unit consists of 18 landfill cells planned for development in multiple phases and encompasses a total of 141 future lined acres. The current landfill facility has constructed Cells 1 through 9. Cells 1 through 5 encompasses 34 acres while cells 6 through 9 encompasses an additional 37 acres. These cells were placed into operation in accordance with an operation plan approval issued by SCDHEC in 2010 (cells 1 through 5) and 2015 (cells 6 through 9), respectively.

The Unit receives both fly ash and flue gas desulfurization (FGD) waste from the Station and includes a liner system consisting of a minimum 2-foot-thick compacted clay layer (maximum permeability of 1×10^{-7} cm/sec) overlain by a 60-mil HDPE geomembrane and leachate collection system.

The Unit accepts CCR for disposal in accordance with the federal *Criteria for Classification of Solid Waste Disposal Facilities and Practices; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule* (CCR Rule), effective October 19, 2015, and subsequent Final Rules promulgated by the United States Environmental Protection Agency (USEPA).

1.2 Groundwater Monitoring and Statistical Analysis

In accordance with 40 CFR §257.90 through §257.94, DESC installed a groundwater monitoring system for the Unit, collected samples from the Certified Monitoring Well Network for laboratory analysis for CCR constituents, and performed statistical analysis of the collected samples. The location of the EPA CCR Rule Compliance Monitoring Well Network is presented on **Figure 2**. The Certified Monitoring Well Network consists of 12 wells installed into the subsurface to monitor shallow groundwater as follows:

- Six wells were installed as background monitoring wells and include AS-LF-01, AS-LF-02, AS-LF-03, MW-BG-73, MW-LF-01, and MW-LF-06.

- Six wells were installed as compliance monitoring wells and include MW-LF-07, MW-LF-08, MW-LF-10, MW-LF-10A, MW-LF-11, and MW-LF-22.

Pursuant to 40 CFR §257.91(f), DESC obtained certification by a qualified South Carolina-registered professional engineer (P.E.) stating that the Certified Monitoring Well Network has been designed and constructed to meet the requirements of 40 CFR §257.91 of the CCR Rule (Garrett & Moore 2017).

As discussed above, the Unit is currently being monitored pursuant to the CCR Rule. A groundwater sampling and analysis plan including selection of statistical procedures to evaluate groundwater data was prepared per the CCR Rule (Nautilus 2016). Eight quarterly background CCR detection monitoring events were performed from May 2016 through July 2017 in accordance with 40 CFR §257.93(d) and §257.94(b). The eight quarterly detection monitoring background samples were analyzed for Appendix III to Part 257 – Constituents for Detection Monitoring and for Appendix IV to Part 257 – Constituents for Assessment Monitoring.

Following completion of quarterly background detection monitoring in July 2017, DESC implemented semiannual detection monitoring per 40 CFR §257.94(b) for the Unit. The second semiannual (initial) detection monitoring event was performed in September 2017. Subsequent detection monitoring events, with associated verification sampling when appropriate, have been performed on a semiannual basis since September 2017. DESC completed the second semiannual 2022 detection monitoring event in September 2022. Per the CCR Rule, the semiannual detection monitoring event samples were analyzed for Appendix III constituents.

After completion of each semiannual detection monitoring event, the Appendix III data were statistically evaluated to identify potential statistically significant increases (SSIs) for Appendix III constituents above background levels. In accordance with 40 CFR §257.93(f)(6), DESC obtained certification by a qualified South Carolina-registered P.E. stating that the selected statistical method is appropriate for evaluating the groundwater monitoring data for the Unit (SCE&G 2017).

Pursuant to 40 CFR §257.93(h), statistical analysis of the laboratory analytical data was performed to identify potential SSIs for the second semiannual 2022 detection monitoring event. Data from the second semiannual 2022 detection monitoring event is presented in **Table 1**. A total of two SSIs were identified for two Appendix III constituents: chloride and sulfate.

1.3 Purpose

Pursuant to 40 CFR §257.94(e)(2), DESC may demonstrate that a source other than the CCR Unit caused the SSIs identified or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. The purpose of this report is to provide written

documentation of the successful ASD for the SSIs identified for the second semiannual 2022 detection monitoring event, pursuant to 40 CFR §257.94(e)(2) of the CCR Rule.

1.4 Site Hydrogeology

The Station is located within the Catawba-Wateree River Subbasin (Santee River Basin watershed) of the Coastal Plain physiographic province. Aquifers and confining units in the South Carolina portion of the Coastal Plain are composed of crystalline carbonate rocks, sand, clay, silt, and gravel that contain large volumes of high-quality groundwater (SAWSC 2016). The Unit groundwater monitoring wells are within the surficial aquifer of the Black Creek geologic formation. This formation ranges from ground surface to a depth of approximately 350 feet and consists of medium to coarse-grained glauconitic and phosphatic quartz sands interbedded with lenses of lignitic and micaceous clay beds (SCDNR 2009). Groundwater flow beneath the Unit is generally to the southeast as depicted on **Figure 3**. Hydraulic conductivity values in the surficial aquifer at the Unit range from 2.47 x 10^{-4} cm/s to 2.33 x 10^{-2} cm/s with an estimated groundwater flow velocities of between 0.02 to 2.09 feet/day (Nautilus 2021).

1.5 General Groundwater Quality

Regionally, groundwater quality within the Black Creek Aquifer is generally alkaline in composition consisting of a sodium bicarbonate water type (SCDHEC 2013). The USEPA has established National Primary Drinking Water Regulations that define a permitted maximum contaminant level (MCL) for specific constituents in drinking water. The primary MCLs are legally enforceable standards that were established to protect public health by limiting the levels of contaminants in drinking water. Additionally, the USEPA has established non-enforceable secondary MCLs for guidelines to assist public water systems in managing their drinking water for aesthetic consideration such as taste, color, and odor. Reported water quality concentrations for select primary and/or secondary drinking water contaminants compared to USEPA MCLs are provided in the table below.

Catawba-Wateree River Subbasin Groundwater Water Quality

Constituent	Concentration Range		USEPA
	Low	High	MCL
Chloride (mg/L)	1	36	250 (Secondary)
Sulfate (mg/L)	1	118	250 (Secondary)

Note: mg/L = milligram per liter

As noted in the table above, the natural range of groundwater quality within the Catawba-Wateree River Subbasin is less than the secondary MCLs for chloride and sulfate (SCDNR 2009).

Section 2
Alternate Source Demonstration

Pursuant to 40 CFR §257.94(e)(2), DESC may demonstrate that a source other than the CCR Unit caused the SSI or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. As discussed previously, the second semiannual 2022 detection monitoring event was performed in September 2022. Statistical analysis of the second semiannual 2022 detection monitoring data was performed pursuant to 40 CFR §257.93(f) and (g) and in accordance with the Statistical Methods Certification (SCE&G 2017) and the Statistical Analysis Plan (OBG 2017). Based on either increasing trends at 95% confidence levels using Thiel-Sen's trend test and/or interwell prediction limits statistical analyses, the following SSIs were identified:

- MW-LF-10: sulfate
- MW-LF-22: chloride

All other Appendix III constituent concentrations were within their trends at 95% confidence levels using Thiel-Sen's trend and/or interwell prediction limits in all the CCR Rule groundwater downgradient monitoring system wells.

A discussion for each of the individual SSIs and associated evidence demonstrating that the SSIs were not caused by a release from the Unit is provided in the subsections below.

2.1 Sulfate at MW-LF-10

The sulfate SSI identified at MW-LF-10 is the result of potential surface water impacts to groundwater at the well and natural variation in groundwater quality from areas upgradient from the CCR Unit. The following evidence supports this determination:

- The steel protective cover for MW-LF-10 was accidently struck by a mowing contractor in 2018 during routine maintenance at the CCR Unit. The surface integrity of the steel protective cover and concrete well pad was suspected to have been compromised as the result of the accident and a replacement well (MW-LF-10A) was installed in December 2018. Monitoring well MW-LF-10A was installed approximately 80 feet northeast of MW-LF-10 and set to monitor the same groundwater interval (15 to 25 feet below ground surface) as MW-LF-10.
- Surface water is carried away from the CCR Unit via a drainage ditch that runs parallel to the perimeter of the CCR Unit boundary. Both MW-LF-10 and MW-LF-10A are located approximately 30 to 40 feet downgradient from this drainage ditch however, MW-LF-10 is located adjacent to a check dam within the ditch that serves to reduce the flow of surface water and prevent erosion in the area. During times of heavy precipitation, surface water accumulates at the check dam and

infiltrates into the ground surface near MW-LF-10. The compromised surface completion at MW-LF-10 provides a conduit for surface water to potentially migrate to groundwater at the well.

- Given the potential for surface water impacts to groundwater at MW-LF-10, DESC abandoned this well in December 2022. MW-LF-10A will serve as the compliance monitoring well at this location.
- Sulfate was detected in MW-LF-10 at a concentration of 9.79 mg/L in the September 2022 event. This concentration exceeds the background threshold value of 7.89 mg/L. Reported regional sulfate concentrations for groundwater in the Station area range between 1 mg/L to 118 mg/L (SCDNR 2009). The detected sulfate concentration of 9.79 mg/L from September 2022 falls within the range of natural variation in area groundwater quality.

2.2 Chloride at MW-LF-22

The chloride SSI identified at MW-LF-22 is a result of natural variation in groundwater quality from areas upgradient from the Unit. The following evidence supports this determination:

- Chloride was detected in MW-LF-22 at a concentration of 9.99 mg/L in the September 2022 sampling event. Reported regional chloride concentrations for groundwater in the Station area range between 1 mg/L to 36 mg/L (SCDNR 2009). The detected chloride concentration of 9.99 mg/L from September 2022 falls within the range of natural variation in area groundwater quality.
- Chloride concentrations in background monitoring wells have historically ranged from between 2.14 mg/L (MW-BG-73) to 9.14 mg/L (AS-LF-01). The September 2022 chloride concentration of 9.99 mg/L falls just outside the range of historical background levels but still within the range of naturally occurring chloride levels in the area.

Section 3
Conclusions

The information provided in this report serves as the ASD prepared in accordance with 40 CFR §257.94(e)(2) of the CCR Rule and demonstrates that the SSIs determined based on statistical analysis of the second semiannual 2022 detection monitoring event performed in September was not due to a release from the Unit to the subsurface.

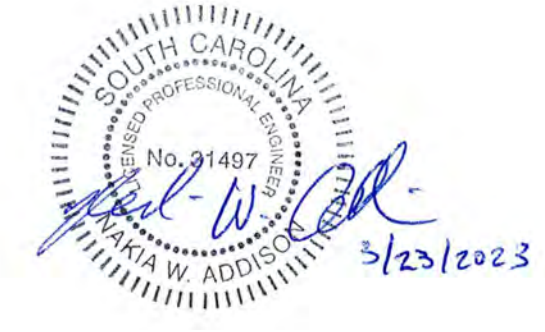
Based on the information provided in this ASD report, DESC will continue to conduct semiannual detection monitoring in accordance with 40 CFR §257.94 at the Certified Monitoring Well Network for the CCR Unit.

Section 4
Certification

I hereby certify that the alternative source demonstration presented within this document for the DESC Wateree Station Class III Industrial Landfill CCR Unit has been prepared to meet the requirements of Title 40 CFR §257.94(e)2 of the Federal CCR Rule. This document is accurate and has been prepared in accordance with good engineering practices, including the consideration of applicable industry standards, and with the requirements of Title 40 CFR §257.94(e) 2.

Name: Nakia W. Addison, P.E. **Expiration Date:** June 30, 2024

Company: TRC Engineers, Inc. **Date:**



(SEAL)

Section 5
References

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Nautilus 2016. Groundwater Sampling and Analysis Plan, Wateree Station Class III Landfill, FGD Pond, Ash Pond. Richland County, SC: Nautilus Geologic Consulting, PLLC.

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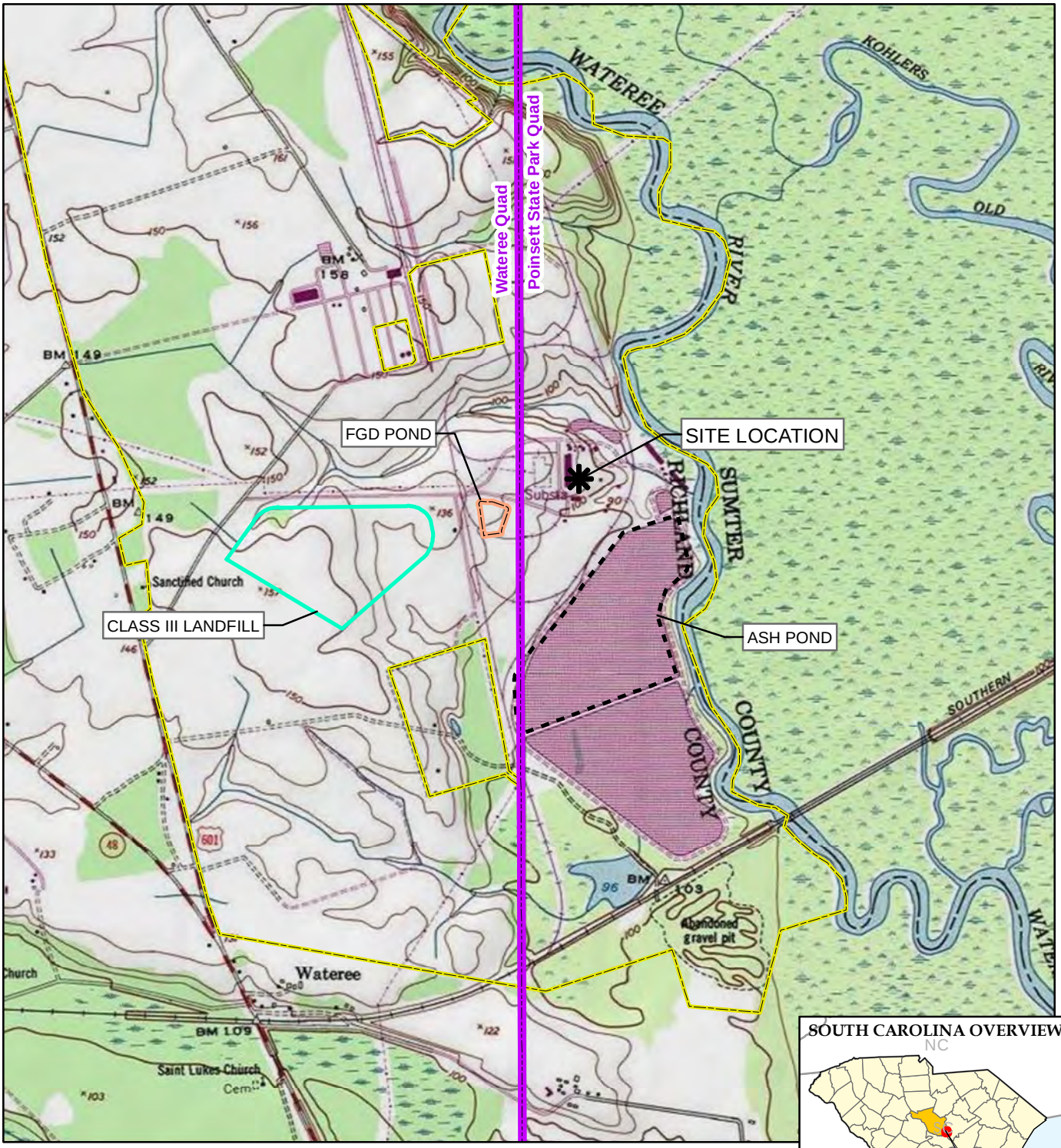
Figures

TRC - GIS



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES (WATEREE & POINSETT STATE PARK).

USGS 24k QUAD BOUNDARY

SITE LOCATION

CLASS III LANDFILL BOUNDARY

ASH POND

FGD POND

PROPERTY BOUNDARY

1 " = 2,000 '
1:24,000

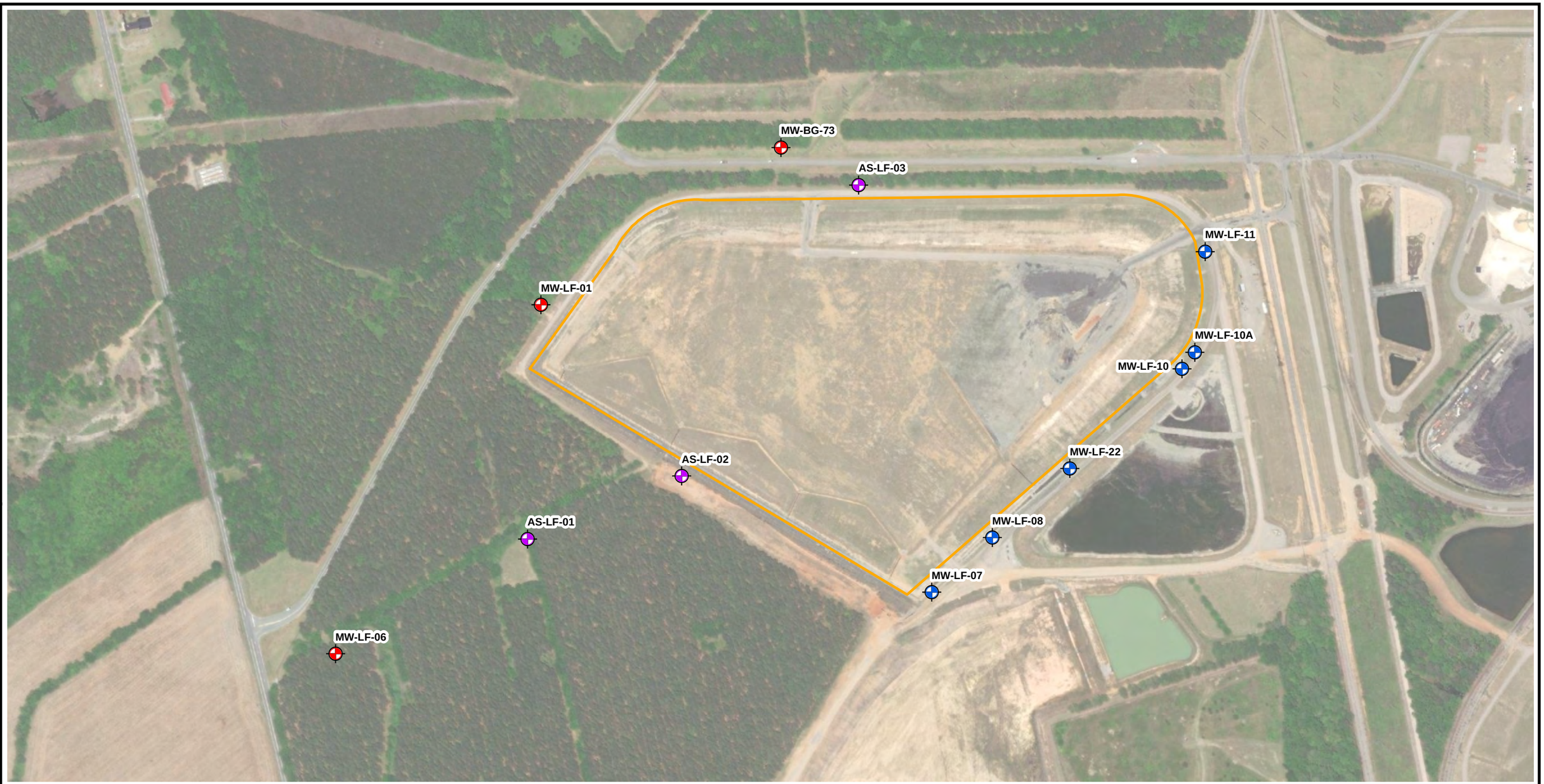
0 1,000 2,000 FEET

TRC
50 International Drive, Suite 150
Patewood Plaza Three
Greenville, SC 29615
Phone: 864.281.0030

DOMINION ENERGY SOUTH CAROLINA
WATEREE STATION
142 WATEREE STATION ROAD
EASTOVER, SOUTH CAROLINA 29044

FIGURE 1
SITE LOCATION MAP

DRAWN BY:	J. YONTS
APPROVED BY:	R. MAYER
PROJECT NO:	416559.0007.0000
FILE NO.	Figure1_Wateree_LF_Loc_Map_CCR.mxd
DATE:	JANUARY 2023



LEGEND

- CCR Background Monitoring Well
- CCR Downgradient Monitoring Well
- CCR Background ASD Monitoring Well
- Class III Landfill Boundary

NOTE: Aerial Image from ESRI World Imagery dated April 2021.

N W E S

0 400 800 Feet

1 " = 400 '
1:4,800

PROJECT:
DESC WATEREE STATION
CLASS III LANDFILL
EASTOVER, SOUTH CAROLINA

TITLE:
CCR RULE COMPLIANCE MONITORING WELL NETWORK

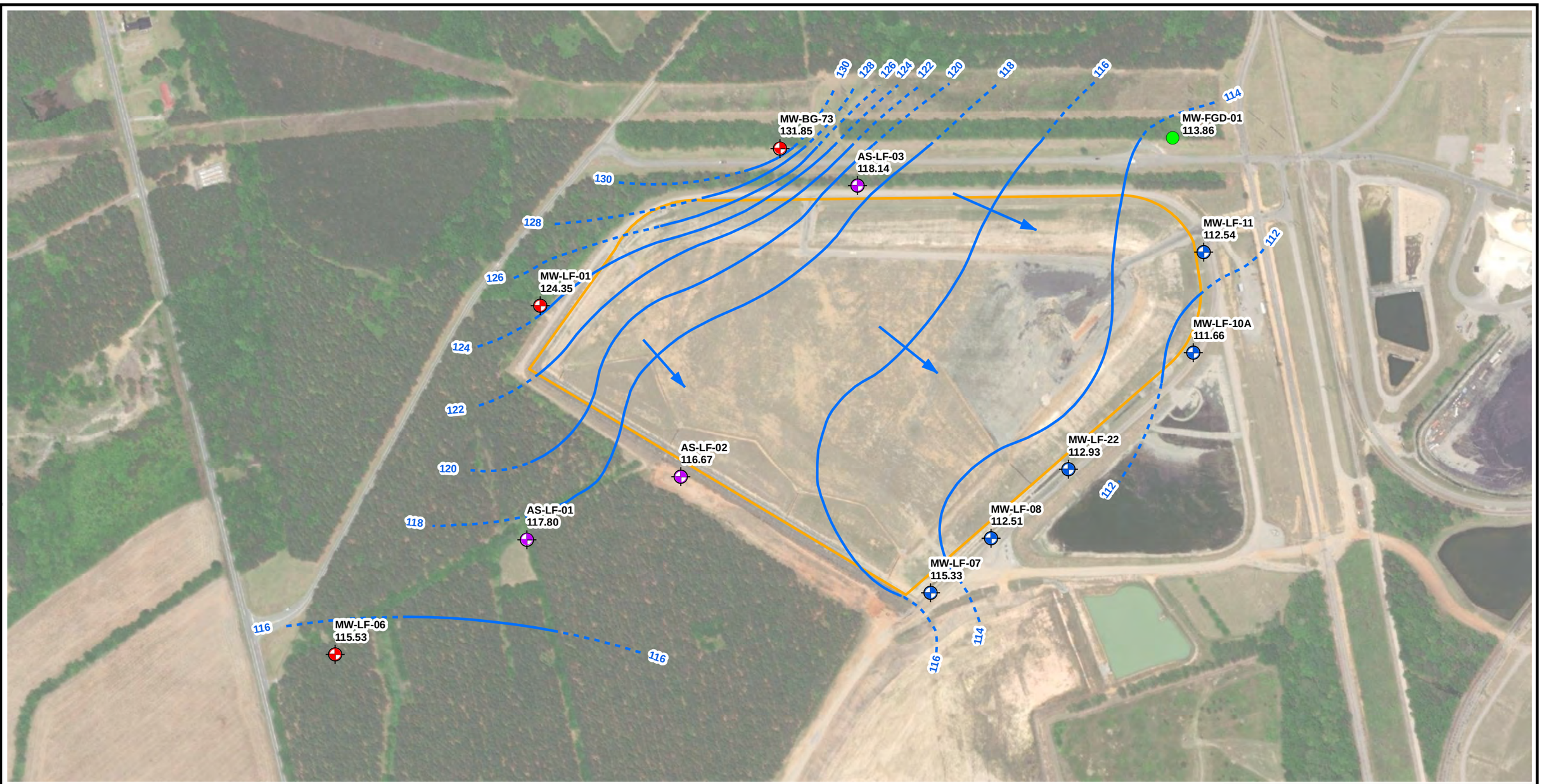
DRAWN BY:	J. YONTS	PROJ. NO.:	416559.0005.0000
CHECKED BY:	R. MAYER		**FIGURE 2**
APPROVED BY:	R. MAYER		
DATE:	DECEMBER 2022		

TRC
50 International Drive, Suite 150
Patewood Plaza Three
Greenville, SC 29615
Phone: 864.281.0030
www.TRCcompanies.com

FILE NO.: Figure2_CCR_LF_Well_Network.mxd

Plot Date: 12/28/2022, 14:27:37 PM by JYONTS -- LAYOUT: ANSI B(11"x17")
Path: S:\1-PROJECTS\Dominion\South Carolina\5 Wateree SC\Landfill\2022\Figure2 CCR LF Well Network.mxd
Coordinate System: NAD 1983 StatePlane South Carolina FIPS 3900 Feet (Foot US)
Map Rotation: 0

TRC - GIS



LEGEND

- CCR Background Monitoring Well
- CCR Downgradient Monitoring Well
- CCR Background ASD Monitoring Well
- Event Piezometer
- Class III Landfill Boundary

Water Table Elevation in feet above mean sea level (2' Contour Intervals) - Dashed where inferred.

Approximate Groundwater Flow Direction

116.67 Water Elevation (FT MSL)

NOTE: Aerial Image from ESRI World Imagery dated April 2021.

N W E S

0 400 800 Feet

1 " = 400 '
1:4,800

PROJECT:
DESC WATEREE STATION
CLASS III LANDFILL
EASTOVER, SOUTH CAROLINA

TITLE:
GROUNDWATER POTENTIOMETRIC SURFACE MAP - SEPTEMBER 6, 2022

DRAWN BY:	J. YONTS	PROJ. NO.:	416559.0005.0000
CHECKED BY:	R. MAYER		**FIGURE 3**
APPROVED BY:	R. MAYER		
DATE:	DECEMBER 2022		

TRC
50 International Drive, Suite 150
Patewood Plaza Three
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FILE NO.: Figure3_CCR_WT_LF_2022_Q3.mxd

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Coordinate System: NAD 1983 StatePlane South Carolina FIPS 3900 Feet (Foot US)
Map Rotation: 0

TRC - GIS

Tables

Table 1
September 2022 Summary of Potential Statistically Significant Increases – Wateree Class III Landfill

			Background Wells																			
		Sample ID:	MW-BG-73				MW-LF-01				AS-LF-01				AS-LF-02				AS-LF-03			
		Sample Date:	09/09/2022				09/09/2022				09/09/2022				09/09/2022				09/09/2022			
Parameter Name	**Units**	**Background Threshold Values**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**
CCR Appendix III																						
Boron	µg/L	140	**10.9**	J	5.20	15.0	**11.5**	J	5.20	15.0	**8.99**	J	5.20	15.0	**8.97**	J	5.20	15.0	**9.14**	J	5.20	15.0
Calcium	µg/L	6670	**280**		80.0	200	**125**	J	80.0	200	**1200**		80.0	200	**1220**		80.0	200	**658**		80.0	200
Chloride	mg/L	9.14	**2.52**		0.0670	0.200	**6.69**		0.0670	0.200	**8.91**		0.0670	0.200	**2.82**		0.0670	0.200	**5.48**		0.0670	0.200
Fluoride	mg/L	0.1	0.0330	U	0.0330	0.100	0.0330	U	0.0330	0.100	0.0330	U	0.0330	0.100	0.0330	U	0.0330	0.100	0.0330	U	0.0330	0.100
pH	SU	2.5 - 6.2	4.13		0.1	0.1	4.38		0.1	0.1	4.54		0.1	0.1	4.94		0.1	0.1	3.93		0.1	0.1
Sulfate	mg/L	7.89	**0.398**	J	0.133	0.400	0.133	U	0.133	0.400	**0.891**		0.133	0.400	**3.25**		0.133	0.400	**0.587**		0.133	0.400
Total Dissolved Solids	mg/L	111	2.38	U	2.38	10.0	**9.00**	J	2.38	10.0	**17.0**		2.38	10.0	**7.00**	J	5.20	15.0	**10.0**		5.20	15.0
Field Parameters																						
Conductivity	µS/cm	--	25.09		0.1	0.1	54.71		0.1	0.1	58.65		0.1	0.1	34.01		0.1	0.1	53.59		0.1	0.1
Dissolved Oxygen	mg/L	--	5.50		0.01	0.01	5.62		0.01	0.01	7.45		0.01	0.01	3.15		0.01	0.01	6.78		0.01	0.01
Temperature	C	--	23.07		0.01	0.01	21.37		0.01	0.01	19.59		0.01	0.01	22.14		0.01	0.01	21.75		0.01	0.01
Turbidity	NTU	--	0.59		0.1	0.1	1.80		0.1	0.1	2.77		0.1	0.1	41		0.1	0.1	1.01		0.1	0.1
Depth to Water*	ft btoc	--	9.72		0.01	0.01	24.30		0.01	0.01	32.10		0.01	0.01	32.88		0.01	0.01	28.01		0.01	0.01
Groundwater Elevation*	ft msl	--	131.85		0.01	0.01	124.35		0.01	0.01	117.80		0.01	0.01	116.67		0.01	0.01	118.14		0.01	0.01
Oxidation Reduction Potential	millivolts	--	302.4		0.1	0.1	223.4		0.1	0.1	218.2		0.1	0.1	197.0		0.1	0.1	256.2		0.1	0.1

Notes:
MDL = Method Detection Limit
QL = Quantitation Limit
mg/L = Milligram per liter
µg/L = Microgram per liter
µS/cm = MicroSiemen per centimeter
SU = Standard Units
C = Degrees Celsius
NTU = Nephelometric Turbidity Unit
ft btoc = feet below top of casing
ft msl = feet above mean sea level

Qualifiers (Qual)
J = Estimated Results
U = Samples reported below their respective MDL
= Concentration greater than Background Threshold Values
Bold font = Detected constituent
* - Groundwater Elevation data collected on September 6, 2022

Table 1
September 2022 Summary of Potential Statistically significant Increases – Wateree Class III Landfill

			Background Well				Downgradient Wells											
		Sample ID:	MW-LF-06				MW-LF-07				MW-LF-08				MW-LF-10			
		Sample Date:	09/09/2022				09/09/2022				09/12/2021				09/12/2022			
Parameter Name	**Units**	**Background Threshold Values**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**
CCR Appendix III																		
Boron	µg/L	140	**7.41**	J	5.20	15.0	**8.83**	J	5.20	15.0	**9.02**	J	5.20	15.0	**11.3**	J	5.20	15.0
Calcium	µg/L	6670	**925**		80.0	200	**1010**		80.0	200	**850**		80.0	200	**2890**		80.0	200
Chloride	mg/L	9.14	**6.46**		0.0670	0.200	**7.79**		0.0670	0.200	**5.07**		0.0670	0.200	**7.01**		0.335	1.00
Fluoride	mg/L	0.1	0.0330	U	0.0330	0.100	**0.0448**	J	0.0330	0.100	0.0330	U	0.0330	0.100	0.0330	U	0.0330	0.100
pH	SU	2.5 - 6.2	4.79		0.1	0.1	3.97		0.1	0.1	4.37		0.1	0.1	4.10		0.1	0.1
Sulfate	mg/L	7.89	**0.590**		0.133	0.400	**1.41**		0.133	0.400	**0.563**		0.133	0.400	**9.79**		0.133	0.400
Total Dissolved Solids	mg/L	111	**11.0**		2.38	10.0	**3.00**	J	2.38	10.0	**7.00**	J	2.38	10.0	**33.0**		2.38	10.0
Field Parameters																		
Conductivity	µS/cm	--	49.80		0.1	0.1	55.34		0.1	0.1	41.91		0.1	0.1	74.37		0.1	0.1
Dissolved Oxygen	mg/L	--	6.22		0.01	0.01	6.64		0.01	0.01	6.85		0.01	0.01	6.01		0.01	0.01
Temperature	C	--	19.44		0.01	0.01	27.19		0.01	0.01	24.65		0.01	0.01	25.34		0.01	0.01
Turbidity	NTU	--	3.68		0.1	0.1	5.90		0.1	0.1	2.41		0.1	0.1	4.48		0.1	0.1
Depth to Water*	ft btoc	--	30.44		0.01	0.01	24.65		0.01	0.01	25.16		0.01	0.01	19.61		0.01	0.01
Groundwater Elevation*	ft msl	--	115.53		0.01	0.01	115.33		0.01	0.01	112.51		0.01	0.01	111.92		0.01	0.01
Oxidation Reduction Potential	millivolts	--	217.5		0.1	0.1	316.9		0.1	0.1	142.3		0.1	0.1	342.7		0.1	0.1

Notes:

MDL = Method Detection Limit

QL = Quantitation Limit

mg/L = Milligram per liter

µg/L = Microgram per liter

µS/cm = MicroSiemen per centimeter

SU = Standard Units

C = Degrees Celsius

NTU = Nephelometric Turbidity Unit

ft btoc = feet below top of casing

ft msl = feet above mean sea level

Qualifiers (Qual)

J = Estimated Results

U = Samples reported below their respective MDL

Bold font = Detected constituent

* - Groundwater Elevation data collected on September 6, 2022

Table 1
September 2022 Summary of Potential Statistically Significant Increases – Wateree Class III Landfill

			Downgradient Wells											
		Sample ID:	MW-LF-10A				MW-LF-11				MW-LF-22			
		Sample Date:	09/12/2022				09/12/2022				09/08/2022			
Parameter Name	**Units**	**Background Threshold Values**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**
CCR Appendix III														
Boron	µg/L	140	**8.61**	J	5.20	15.0	**9.57**	J	5.20	15.0	**15.1**		5.20	15.0
Calcium	µg/L	6670	**332**		80.0	200	**379**		80.0	200	**2060**		80.0	200
Chloride	mg/L	9.14	**4.17**		0.0670	0.200	**5.75**		0.0670	0.200	**9.99**		0.134	0.400
Fluoride	mg/L	0.1	0.0330	U	0.0330	0.100	0.0330	U	0.0330	0.100	**0.0707**	J	0.0330	0.100
pH	SU	2.5 - 6.2	4.26		0.1	0.1	4.14		0.1	0.1	4.15		0.1	0.1
Sulfate	mg/L	7.89	**0.791**		0.133	0.400	**0.499**		0.133	0.400	**1.06**		0.133	0.400
Total Dissolved Solids	mg/L	111	**10.0**		2.38	10.0	**11.0**		2.38	10.0	**21.0**		2.38	10.0
Field Parameters														
Conductivity	µS/cm	--	33.79		0.1	0.1	41.41		0.1	0.1	81.80		0.1	0.1
Dissolved Oxygen	mg/L	--	4.88		0.01	0.01	6.06		0.01	0.01	3.60		0.01	0.01
Temperature	C	--	26.09		0.01	0.01	24.51		0.01	0.01	22.19		0.01	0.01
Turbidity	NTU	--	2.53		0.1	0.1	1.64		0.1	0.1	2.45		0.1	0.1
Depth to Water*	ft btoc	--	20.83		0.01	0.01	22.72		0.01	0.01	22.82		0.01	0.01
Groundwater Elevation*	ft msl	--	111.66		0.01	0.01	112.54		0.01	0.01	112.93		0.01	0.01
Oxidation Reduction Potential	millivolts	--	196.0		0.1	0.1	194.4		0.1	0.1	114.1		0.1	0.1

Notes:
MDL = Method Detection Limit
QL = Quantitation Limit
mg/L = Milligram per liter
µg/L = Microgram per liter
µS/cm = MicroSiemen per centimeter
SU = Standard Units
C = Degrees Celsius
NTU = Nephelometric Turbidity Unit
ft btoc = feet below top of casing
ft msl = feet above mean sea level

Qualifiers (Qual)
J = Estimated Results
U = Samples reported below their respective MDL
= Concentration greater than Background Threshold Values
Bold font = Detected constituent
* - Groundwater Elevation data collected on September 6, 2022

Appendix B
March 2023 Alternate Source Demonstration

DOMINION ENERGY SOUTH CAROLINA

WATEREE STATION CLASS III LANDFILL

RICHLAND COUNTY, SOUTH CAROLINA

USEPA CCR RULE COMPLIANCE

ALTERNATE SOURCE DEMONSTRATION REPORT

First Semiannual 2023 Detection Monitoring Event

September 25, 2023

Nakia W. Addison, P.E.
Senior Engineer

Richard A. Mayer Jr., P. G.
Project Hydrogeologist

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List of Tables

Executive Summary

Dominion Energy South Carolina (DESC) completed the first semiannual 2023 detection monitoring event in March 2023 for the Wateree Generating Station (Station) Class III Landfill (Unit) pursuant to the *Criteria for Classification of Solid Waste Disposal Facilities and Practices; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule*, 40 CFR Part 257 (CCR Rule). The Unit constitutes a coal combustion residuals (CCR) Unit per the CCR Rule. Per 40 CFR §257.94, the samples were analyzed for the Appendix III detection monitoring parameters. Upon receipt of the laboratory analytical results, statistical analysis was performed and evaluated for potential statistically significant increases (SSI) above background concentrations.

The following SSIs were identified above the background concentrations based on direct comparisons made between the statistically derived background threshold values (95 percent upper prediction limit) and the downgradient monitoring results:

- Chloride (MW-LF-07, MW-LF-11, and MW-LF-22).

The information provided in this report serves as DESC's Alternate Source Demonstration (ASD) prepared in accordance with 40 CFR §257.94(e)(2) and is intended to demonstrate that the SSIs are not due to a release from the Unit to groundwater, but may be due to the following:

- An existing groundwater monitoring well network that may not be positioned to best represent monitoring of the groundwater quality passing the waste boundary of the Unit.

Therefore, based on the information provided in this ASD report, DESC intends to conduct semiannual detection monitoring for Appendix III constituents in accordance with 40 CFR §257.94 at the certified groundwater monitoring well system (Certified Monitoring Well Network) for the Unit. TRC is evaluating the current Certified Monitoring Well Network to determine if it satisfies the CCR rule for horizontal and vertical placements for monitoring groundwater at the waste boundary of the Unit. This evaluation began in December 2022 and is anticipated to conclude in October 2023. The review will include the evaluation of monthly groundwater level measurements and eight independent sampling events for background parameter evaluation of the proposed monitoring well network.

Section 1
Introduction

1.1 Background

Dominion Energy South Carolina (DESC) operates the Wateree Generating Station (Station), a coal-fired steam power plant, to generate electricity. The Station is located at 142 Wateree Station Road in Eastover, Richland County, South Carolina as shown on **Figure 1**. Coal combustion residuals (CCR) are produced as part of the electrical generation operations and currently placed in an on-site landfill put into operation beginning in 2008. The landfill is a Class III non-commercial industrial landfill (Unit) and operates under South Carolina Department of Health and Environmental Control (SCDHEC) Solid Waste Permit No. LF-3-00026. The Unit includes a liner system consisting of a minimum 2-foot-thick compacted clay layer (maximum permeability of 1×10^{-7} cm/sec) overlain by a 60-mil high-density polyethene (HDPE) geomembrane and leachate collection system.

The Unit accepts CCR for disposal in accordance with the federal *Criteria for Classification of Solid Waste Disposal Facilities and Practices; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule* (CCR Rule), effective October 19, 2015, and subsequent Final Rules promulgated by the United States Environmental Protection Agency (USEPA).

1.2 Groundwater Monitoring and Statistical Analysis

In accordance with 40 CFR §257.90 through §257.94, DESC installed a groundwater monitoring system for the Unit, collected samples from the Certified Monitoring Well Network for laboratory analysis for CCR constituents, and performed statistical analysis of the collected samples. The location of the USEPA CCR Rule Compliance Monitoring Well Network is presented on **Figure 2**. The Certified Monitoring Well Network consists of eight wells installed into the subsurface to monitor shallow groundwater as follows:

- Three upgradient/background monitoring wells: MW-BG-73, MW-LF-01, and MW-LF-06.
- Five downgradient monitoring wells: MW-LF-07, MW-LF-08, MW-LF-10A, MW-LF-11, and MW-LF-22.
- Three wells to support alternate source demonstration activities: AS-LF-01, AS-LF-02, and AS-LF-03.

The first semiannual 2023 detection monitoring event was conducted March 14-15, 2023. Per the CCR Rule, the semiannual detection monitoring event samples were analyzed for Appendix III constituents. Pursuant to 40 CFR §257.93(h), statistical analysis of the laboratory analytical data was performed to identify potential statistically significant increases (SSIs) above background for the first semiannual 2023 detection monitoring event. Data from the first semiannual 2023 detection monitoring event is presented in **Table 1**. A total of three SSIs were identified for one Appendix III constituent: chloride.

1.3 Purpose

Pursuant to 40 CFR §257.94(e)(2), DESC may demonstrate that a source other than the CCR Unit caused the SSIs identified or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. The purpose of this report is to provide written documentation of the successful ASD for the SSIs identified for the first semiannual 2023 detection monitoring event.

1.4 Site Hydrogeology

The Station is located within the Catawba-Wateree River Subbasin (Santee River Basin watershed) of the Coastal Plain physiographic province. Aquifers and confining units in the South Carolina portion of the Coastal Plain are composed of crystalline carbonate rocks, sand, clay, silt, and gravel that contain large volumes of high-quality groundwater (SAWSC 2016). The Unit groundwater monitoring wells are within the surficial aquifer of the Black Creek geologic formation. This formation ranges from ground surface to a depth of approximately 350 feet and consists of medium to coarse-grained glauconitic and phosphatic quartz sands interbedded with lenses of lignitic and micaceous clay beds (SCDNR 2009). Groundwater flow beneath the Unit is generally to the southeast as depicted on **Figure 3**, with an estimated groundwater flow velocity of between 0.02 to 2.09 feet/day.

Section 2
Alternate Source Demonstration

Pursuant to 40 CFR §257.94(e)(2), DESC may demonstrate that a source other than the Unit caused the SSI or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. As discussed previously, the first semiannual 2023 detection monitoring event was performed March 14-15, 2023. Statistical analysis of the first semiannual 2023 detection monitoring data was performed pursuant to 40 CFR §257.93(f) and (g) and in accordance with the Statistical Methods Certification (SCE&G 2017) and the Statistical Analysis Plan (OBG 2017). Based on either increasing trends at 95% confidence levels using Thiel-Sen's trend test and/or interwell prediction limits statistical analyses, the following SSIs were identified:

- Chloride (MW-LF-07, MW-LF-11, and MW-LF-22).

A discussion for each of the individual SSIs and associated evidence demonstrating that the SSIs were not caused by a release from the Unit is provided in the subsections below.

2.1 Chloride

The chloride SSIs identified at MW-LF-07, MW-LF-11, and MW-LF-22 may be the result of an existing groundwater monitoring well network that may not be positioned to best represent monitoring of the groundwater quality upgradient of the Unit. The following evidence supports this determination:

- Chloride was detected at a concentration of 9.74 mg/L (MW-LF-07), 9.16 mg/L (MW-LF-11), and 11.0 mg/L (MW-LF-22) in the March 2023 sampling event. These concentrations exceed the background threshold value of 9.14 mg/L. Background monitoring well MW-LF-06 however, does not appear to be in an optimal position to adequately monitor representative background groundwater quality entering the Unit. As depicted on **Figure 3**, groundwater flow is to the southeast with monitoring well MW-LF-06 located hydraulically downgradient (southwest of the Unit), and therefore does not represent background groundwater quality.
- Background monitoring wells MW-LF-01 and MW-BG-73 (**Figure 3**) are located outside the northwest portion of the Unit and appear to be screened entirely within suspected perched water that is sitting on top of a dense clay unit. The suspected perched water at MW-LF-01 and MW-BG-73 is anticipated to be between approximately 5 to 9 feet above the water table in this background area. The direction of flow for this perched water may be controlled by the presence and slope of the clay unit (to the west or southwest), and/or by the man-made drainage ditch that runs along the northwestern side of the Unit. The water in these wells may not accurately represent the quality of groundwater passing the waste boundary upgradient of the Unit.

Section 3
Evaluation of CCR Well Network

Pursuant to 40 CFR §257.91(a)(2), the groundwater monitoring network should accurately represent the quality of groundwater passing the waste boundary of the Unit and monitor all potential contaminant pathways. TRC is evaluating the current Certified Monitoring Well Network to determine if it satisfies the CCR rule for horizontal and vertical placements for monitoring groundwater at the waste boundary of the Unit. This evaluation began in December 2022 and is anticipated to conclude in October 2023.

3.1 Evaluation of Background Monitoring Wells

Background wells MW-LF-01 and MW-BG-73 are located outside the northwest portion of the Unit and appear to be screened entirely within suspected perched water that is sitting on top of a dense clay unit. The suspected perched water at MW-LF-01 and MW-BG-73 is anticipated to be between approximately 5 to 9 feet above the water table in this background area. The direction of flow for this perched water may be controlled by the presence and slope of the clay unit (to the west or southwest), and/or by the man-made drainage ditch that runs along the northwestern side of the landfill. The water in these wells may not accurately represent the quality of groundwater passing the waste boundary upgradient of the landfill. To evaluate this, monitoring wells MW-LF-01D and MW-BG-74 were installed in December 2022 along the northwestern corner of the Unit to monitor groundwater quality in this area. The newly installed monitoring wells are currently gauged for water levels monthly to evaluate groundwater flow of the northwest portion of the Unit. The location of the new monitoring wells are depicted on **Figure 2** and groundwater flow beneath the Unit is depicted on **Figure 3**.

Based on the current understanding of groundwater flow, ASD background well AS-LF-02 appears to be located hydraulically downgradient of the Unit and therefore does not represent background groundwater quality as this location could potentially be affected by leakage from the Unit.

The screened intervals of background wells AS-LF-01 and MW-LF-06 appear to be within the uppermost aquifer, however, they are not located in a position to monitor representative background groundwater quality entering the Unit.

3.2 Evaluation of Downgradient Monitoring Wells

Downgradient wells MW-LF-07, MW-LF-08, MW-LF-10A, MW-LF-11, and MW-22 are located along the southeastern boundary of the landfill and intercept groundwater flowing from beneath the Unit at an appropriate equal spacing interval. The spacing between AS-LF-02 and MW-LF-07 is approximately 1,150 feet which may not provide adequate coverage for the southwestern portion of the Unit. To evaluate this, monitoring well MW-LF-12 was installed in December 2022 along the southwestern side of

the Unit between AS-LF-02 and MW-LF-07. The newly installed monitoring well is currently gauged for water levels monthly to evaluate groundwater flow on the downgradient portion of the Unit. The location of the new monitoring wells is depicted on **Figure 2**.

The four new monitoring wells have been sampled eight times (January 2023 to August 2023) for background data collection in accordance with the CCR Rule in the circumstance that these monitoring wells may be used for compliance in the groundwater monitoring network. The data is currently being evaluated by TRC however, based on preliminary review, the proposed monitoring well network may include:

- Background monitoring wells – MW-LF-01D, MW-BG-74, and AS-LF-03.
  - Remove existing CCR network wells MW-LF-01, MW-LF-06, and MW-BG-73 as they do not appear to provide representative background groundwater quality per CCR Rule §257.9(a)(1)(ii).
- Downgradient monitoring wells - MW-LF-07, MW-LF-08, MW-LF-10A, MW-LF-11, MW-LF-12, MW-LF-22, and AS-LF-02.

The new network will be certified in accordance with the CCR Rule §257.91(f).

Section 4
Conclusions

The information provided in this report serves as the ASD prepared in accordance with 40 CFR §257.94(e)(2) of the CCR Rule and demonstrates that the SSI's were not due to a release from the Unit to the subsurface, but is most likely due to:

- An existing groundwater monitoring well network that may not be positioned to best represent monitoring of the groundwater quality passing the waste boundary of the Unit.

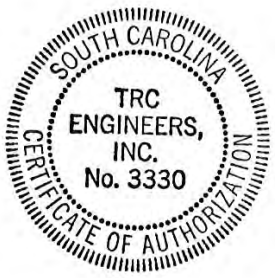
TRC is evaluating the current Certified Monitoring Well Network to determine if it satisfies the CCR rule for horizontal and vertical placements for monitoring groundwater at the waste boundary of the Unit. This evaluation began in December 2022 and is anticipated to conclude in October 2023. The review will include the evaluation of monthly groundwater level measurements and eight independent sampling events for background parameter evaluation of the proposed monitoring well network.

Section 5
Certification

I hereby certify that the alternative source demonstration presented within this document for the DESC Wateree Station Class III Industrial Landfill Unit has been prepared to meet the requirements of Title 40 CFR §257.94(e)(2) of the Federal CCR Rule. This document is accurate and has been prepared in accordance with good engineering practices, including the consideration of applicable industry standards, and with the requirements of Title 40 CFR §257.94(e)(2).

Name: Nakia W. Addison, P.E. **Expiration Date:** June 30, 2024

Company: TRC Engineers, Inc. **Date:** **September 25, 2023**



(SEAL)

Section 6
References

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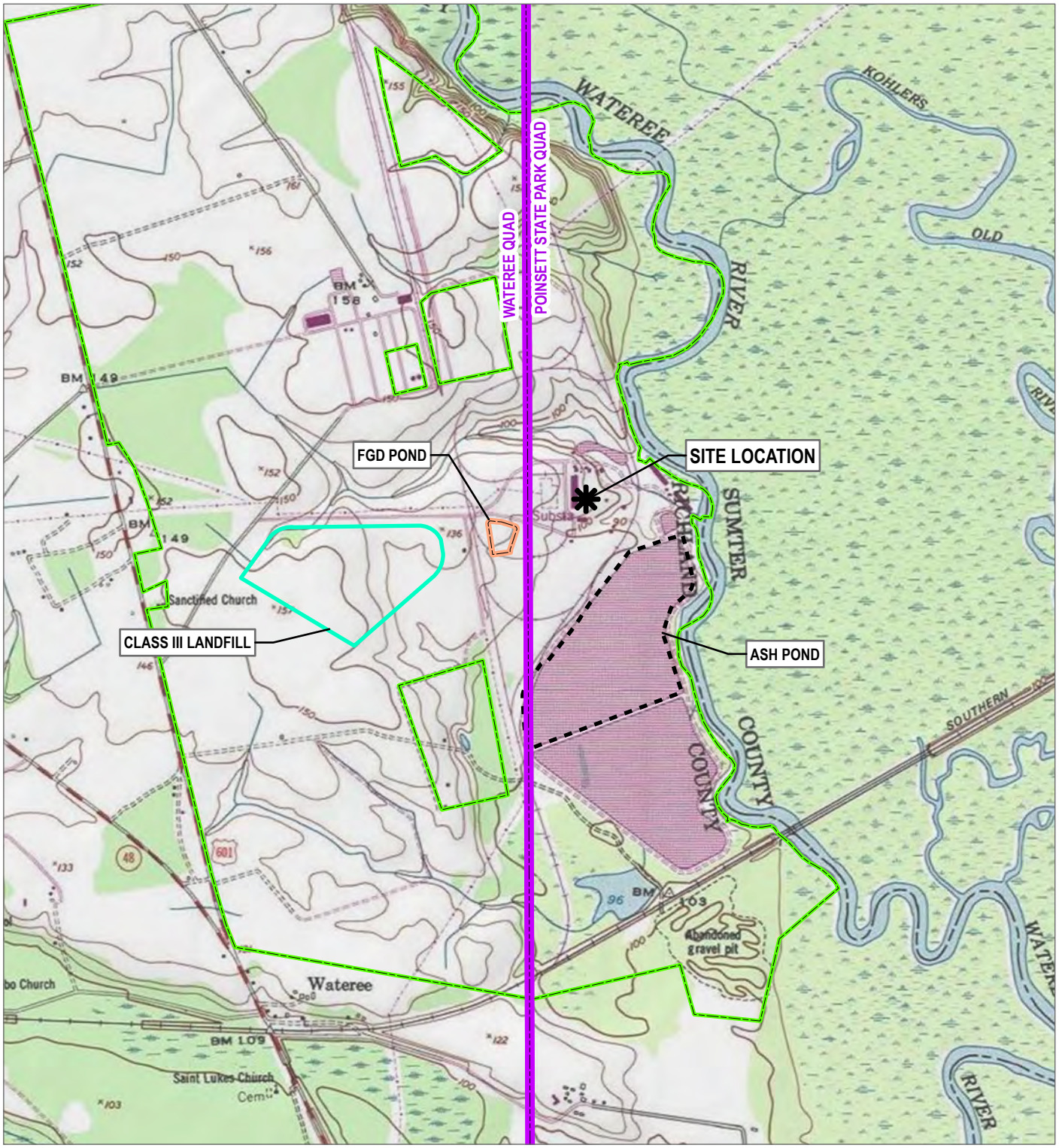
Figures



LEGEND

- SITE LOCATION
- USGS 24K QUAD BOUNDARY
- CLASS III LANDFILL BOUNDARY
- ASH POND
- FGD POND
- PROPERTY BOUNDARY

BASE MAP: USA TOPO MAPS MAP SERVICE
DATA SOURCES: TRC

N

0 1,000 2,000
FEET
1:24,000 1" = 2,000'

PROJECT: DESC WATEREE STATION
CLASS III LANDFILL
EASTOVER, SOUTH CAROLINA

TITLE: SITE LOCATION MAP

DRAWN BY:	L. LILL	PROJ. NO.:	416559.0005.0000
CHECKED BY:	J. YONTS		
APPROVED BY:	R. MAYER		FIGURE 1
DATE:	SEPTEMBER 2023		

TRC
50 INTERNATIONAL DRIVE
PATEWOOD PLAZA THREE, SUITE 150
GREENVILLE, SC 29615
PHONE: 864.281.0030

FILE: 2023_FIGURES

LEGEND

- CCR BACKGROUND MONITORING WELL
- CCR DOWNGRADIENT MONITORING WELL
- NEW MONITORING WELL INSTALLATION LOCATION
- EVENT PIEZOMETER
- CCR ASD MONITORING WELL
- CLASS III LANDFILL BOUNDARY
- PROPERTY BOUNDARY

NOTES:

1. AERIAL IMAGE FROM ESRI WORLD IMAGERY DATED APRIL, 2021.

N

1:4,800
1" = 400'
0 200 400 FEET

PROJECT:
DESC WATEREE STATION
CLASS III LANDFILL
EASTOVER, SOUTH CAROLINA

TITLE:
SITE LAYOUT MAP

DRAWN BY:	L. LILL	PROJ. NO.:	416559.0005.0000
CHECKED BY:	J. YONTS		**FIGURE 2**
APPROVED BY:	R. MAYER		
DATE:	SEPTEMBER 2023		

TRC
50 INTERNATIONAL DRIVE
PATEWOOD PLAZA THREE, SUITE 150
GREENVILLE, SC 29615
PHONE: 864.281.0030

FILE: 2023_Figures.aprx

Coordinate System: NAD 1983 StatePlane South Carolina FIPS 3900 Feet Map Rotation: 0
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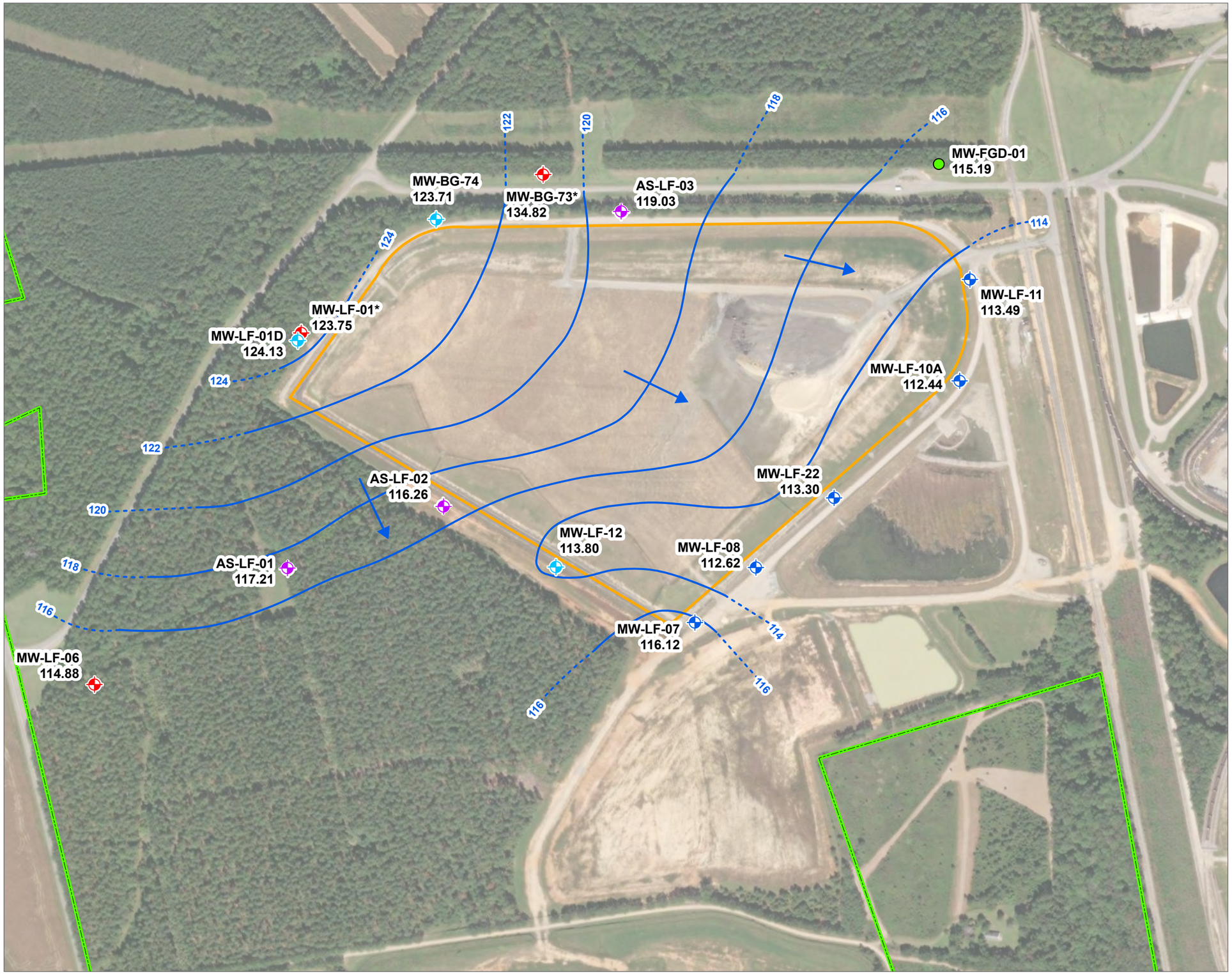

LEGEND

- CCR BACKGROUND MONITORING WELL
- CCR DOWNGRADIENT MONITORING WELL
- NEW MONITORING WELL INSTALLATION LOCATION
- EVENT PIEZOMETER
- CCR ASD MONITORING WELL
- CLASS III LANDFILL BOUNDARY
- PROPERTY BOUNDARY
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- WATER TABLE ELEVATION IN FEET ABOVE MEAN SEA LEVEL (2' CONTOUR INTERVALS) - DASHED WHERE INFERRED
- **114.88** WATER ELEVATION (FT. MSL)

NOTES:

1. AERIAL IMAGE FROM ESRI WORLD IMAGERY DATED APRIL, 2021.
2. * - WATER LEVELS NOT USED TO CREATE CONTOURS.

1:4,800
1" = 400'
0 200 400 FEET

PROJECT:
DESC WATEREE STATION
CLASS III LANDFILL
EASTOVER, SOUTH CAROLINA

TITLE:
GROUNDWATER POTENTIOMETRIC MAP - MARCH 10, 2023

DRAWN BY:	L. LILL	PROJ. NO.:	416559.0005.0000
CHECKED BY:	J. YONTS		**FIGURE 3**
APPROVED BY:	R. MAYER		
DATE:	SEPTEMBER 2023		

TRC
50 INTERNATIONAL DRIVE
PATEWOOD PLAZA THREE, SUITE 150
GREENVILLE, SC 29615
PHONE: 864.281.0030

FILE: 2023_Figures.aprx

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Tables

Table 1
Summary of First Semiannual 2023 Detection Monitoring Program Sampling Event Data
Dominion Energy South Carolina – Wateree Station Class III Landfill
Eastover, Richland County, South Carolina

			Background Wells												Downgradient Wells							
		Sample ID:	MW-BG-73				MW-LF-01				MW-LF-06				MW-LF-07				MW-LF-08			
		Sample Date:	03/15/2023				03/15/2023				03/15/2023				03/15/2023				03/15/2023			
Parameter Name	**Units**	**Background Threshold Values**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**
CCR Appendix III																						
Boron	µg/L	77	**6.60**	J	4.00	15.0	**8.89**	J	4.00	15.0	**5.56**	J	4.00	15.0	**6.23**	J	4.00	15.0	**6.86**	J	4.00	15.0
Calcium	µg/L	6,670	**302**		30.0	100	**166**		30.0	100	**868**		30.0	100	**999**		30.0	100	**835**		30.0	100
Chloride	mg/L	9.14	2.40	U	2.40	2.40	**8.22**		0.0670	0.200	**7.00**		0.0670	0.200	**9.74**		0.0670	0.200	**5.36**	J+	0.0670	0.200
Fluoride	mg/L	0.1	0.0330	U	0.0330	0.100	**0.0384**	J	0.0330	0.100	0.0330	U	0.0330	0.100	**0.0386**	J	0.0330	0.100	0.0330	U	0.0330	0.100
pH	SU	2.5 - 6.2	4.65		0.1	0.1	4.34		0.1	0.1	4.63		0.1	0.1	4.45		0.1	0.1	4.55		0.1	0.1
Sulfate	mg/L	7.89	**0.265**	J	0.133	0.400	**0.362**	J	0.133	0.400	**0.408**		0.133	0.400	**2.61**		0.133	0.400	**0.334**	J	0.133	0.400
Total Dissolved Solids	mg/L	127	2.38	U	2.38	10.0	**16.0**	J	2.38	10.0	**19.0**	J	2.38	10.0	**8.00**	J	2.38	10.0	**13.0**	J	2.38	10.0
Field Parameters																						
Conductivity	µS/cm	--	22.99		0.1	0.1	55.96		0.1	0.1	50.96		0.1	0.1	73.18		0.1	0.1	42.52		0.1	0.1
Dissolved Oxygen	mg/L	--	6.17		0.01	0.01	6.41		0.01	0.01	7.70		0.01	0.01	7.45		0.01	0.01	9.12		0.01	0.01
Temperature	C	--	18.44		0.01	0.01	16.67		0.01	0.01	13.37		0.01	0.01	19.31		0.01	0.01	20.25		0.01	0.01
Turbidity	NTU	--	11.53		0.1	0.1	3.11		0.1	0.1	3.66		0.1	0.1	2.80		0.1	0.1	3.27		0.1	0.1
Oxidation Reduction Potential	millivolts	--	163.3		0.1	0.1	190.4		0.1	0.1	190.0		0.1	0.1	180.3		0.1	0.1	190.4		0.1	0.1

Notes:
MDL = Method Detection Limit
QL = Quantitation Limit
mg/L = Milligram per liter
µg/L = Microgram per liter
µS/cm = MicroSiemen per centimeter
SU = Standard Units
C = Degrees Celsius
NTU = Nephelometric Turbidity Unit
ft btoc = feet below top of casing
ft msl = feet above mean sea level

Qualifiers (Qual)
J = Estimated results
J+ = Estimated results biased high
U = Samples reported below their respective MDL

= Concentration greater than Background Threshold Values
Bold font = Detected constituent

Table 1
Summary of First Semiannual 2023 Detection Monitoring Program Sampling Event Data
Dominion Energy South Carolina – Wateree Station Class III Landfill
Eastover, Richland County, South Carolina

			Downgradient Wells															
		Sample ID:	MW-LF-10A				MW-LF-10A DUP				MW-LF-11				MW-LF-22			
		Sample Date:	03/15/2023				03/15/2023				03/15/2023				03/14/2023			
Parameter Name	**Units**	**Background Threshold Values**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**
CCR Appendix III																		
Boron	µg/L	77	**5.12**	J	4.00	15.0	**5.66**	J	4.00	15.0	**5.90**	J	4.00	15.0	**9.49**	J	4.00	15.0
Calcium	µg/L	6,670	**1,080**		30.0	100	**982**		30.0	100	**348**		30.0	100	**2,130**		30.0	100
Chloride	mg/L	9.14	**4.98**	J+	0.0670	0.200	**5.18**	J+	0.0670	0.200	**9.16**		0.0670	0.200	**11.0**		0.134	0.400
Fluoride	mg/L	0.1	**0.0379**	J	0.0330	0.100	**0.0394**	J	0.0330	0.100	0.0330	U	0.0330	0.100	**0.0411**	J	0.0330	0.100
pH	SU	2.5 - 6.2	4.62		0.1	0.1	4.62		0.1	0.1	4.55		0.1	0.1	4.43		0.1	0.1
Sulfate	mg/L	7.89	**2.60**		0.133	0.400	**2.59**		0.133	0.400	**0.279**	J	0.133	0.400	**1.13**		0.133	0.400
Total Dissolved Solids	mg/L	127	**8.00**	J	2.38	10.0	**11.0**	J	2.38	10.0	**19.0**	J	2.38	10.0	**34.0**	J	2.38	10.0
Field Parameters																		
Conductivity	µS/cm	--	44.36		0.1	0.1	44.36		0.1	0.1	66.10		0.1	0.1	85.24		0.1	0.1
Dissolved Oxygen	mg/L	--	5.68		0.01	0.01	5.68		0.01	0.01	7.70		0.01	0.01	2.67		0.01	0.01
Temperature	C	--	17.09		0.01	0.01	17.09		0.01	0.01	17.14		0.01	0.01	19.88		0.01	0.01
Turbidity	NTU	--	3.29		0.1	0.1	3.29		0.1	0.1	8.12		0.1	0.1	4.00		0.1	0.1
Oxidation Reduction Potential	millivolts	--	187.3		0.1	0.1	187.3		0.1	0.1	245.9		0.1	0.1	484.5		0.1	0.1

Notes:
MDL = Method Detection Limit
QL = Quantitation Limit
mg/L = Milligram per liter
µg/L = Microgram per liter
µS/cm = MicroSiemen per centimeter
SU = Standard Units
C = Degrees Celsius
NTU = Nephelometric Turbidity Unit
ft btoc = feet below top of casing
ft msl = feet above mean sea level

Qualifiers (Qual)
J = Estimated results
J+ = Estimated results biased high
U = Samples reported below their respective MDL

= Concentration greater than Background Threshold Values
Bold font = Detected constituent

Appendix C
First Semiannual Detection Monitoring Program Event Field Data Sheets, Laboratory Reports, and Data Validation Forms

GROUNDWATER LEVEL MEASUREMENT FORM

PROGRAM:	CCR/NPDES	**FACILITY:**	Wateree Generating Station
DATE:	03/10/2023	**PROJECT NUMBER:**	416559.0005.0000
SAMPLER(S) NAME(S):	J. Bradley, A. Misiunas, R. Culp, C. Serowik		

Well ID	Well Type	Time (hhmm)	Depth to GW (btoc,ft)	Depth to Bottom (btoc,ft)	Notes/Remarks
WAT-AS-LF-01	2" PVC	1017	32.69	NM	
WAT-AS-LF-02	2" PVC	1011	33.29	NM	
WAT-AS-LF-03	2" PVC	0838	27.12	38.25	
WAT-MW-03LF	2" PVC	0913	35.35	NM	MW-LF-03
WAT-MW-04LF	2" PVC	0948	21.72	30.00	MW-LF-04
WAT-MW-05LF	2" PVC	0919	37.61	NM	MW-LF-05
MW-LF-06	2" PVC	0902	31.09	NM	
MW-LF-22	2" PVC	0936	22.45	34.49	
WAT-MW-BG-73	2" PVC	1124	6.75	23.41	
MW-BG-74	2" PVC	0845	24.80	54.49	
WAT-MW-FGD-01	2" PVC	1119	23.95	31.60	
MW-LF-01	2" PVC	0850	24.90	33.79	
MW-LF-01D	2" PVC	0854	24.81	52.51	
WAT-MW-LF-07	2" PVC	0927	23.86	31.75	
WAT-MW-LF-08	2" PVC	0932	25.05	36.21	
WAT-MW-LF-10A	2" PVC	0940	20.05	28.73	
WAT-MW-LF-11	2" PVC	0944	21.77	30.41	
MW-LF-12	2" PVC	1006	32.30	NM	

Notes:

Field Team Leader Signature:	Jason A. Yonts Digitally signed by Jason A. Yonts Date: 2023.03.22 13:22:06 -04'00'	**Signature Date:**	03/22/2023

Clear All Values | Print | Submit

TRC

WATER SAMPLE LOG

PROJECT NAME:	Wateree Station LF-CCR	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0005.0000.2.2	BY: CS	DATE: 3/15/23	BY: JAH	DATE: 3/21/23

SAMPLE ID: MW-LF-01 | WELL DIAMETER: ☑ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 0940	DATE: 3/15/23

PURGE METHOD: ☑ PUMP PERISTALTIC PUMP ☐ BAILER

DEPTH TO WATER: 25.13 T/ PVC

DEPTH TO BOTTOM: 33.55 T/ PVC

WELL VOLUME: 1.4 ☐ LITERS ☑ GALLONS

VOLUME REMOVED: 1.2 ☐ LITERS ☑ GALLONS

COLOR: cloudy/light brown ODOR: N/A

TURBIDITY ☐ NONE ☐ SLIGHT ☐ MODERATE ☒ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

SAMPLE	TIME: 1030	DATE: 3/15/23

PH: 3.34 SU | CONDUCTIVITY: 55.96 umhos/cm

ORP: 190.4 mV | DO: 6.41 mg/L

TURBIDITY: 3.11 NTU

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 16.67 °C | OTHER:

COLOR: clear | ODOR: N/A

FILTRATE (0.45 um) ☐ YES ☒ NO

FILTRATE COLOR: | FILTRATE ODOR:

QC SAMPLE: ☐ MS/MSD ☐ DUP-

COMMENTS: post turb - 3.49 1035

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GALLONS)
0945	160	4.33	70.67	192.8	6.11	1000+	16.56	25.17	INITIAL
0950		4.32	58.64	186.8	6.28	1000+	15.99	25.19	
0955		4.32	56.27	187.8	6.41	103.9	16.13	25.19	
1000		4.33	55.75	187.9	6.29	18.6	16.20	25.19	
1005		4.34	55.70	187.8	6.10	13.92	16.36	25.19	
1010		4.34	55.74	187.7	6.36	5.97	16.29	25.19	
1015		4.34	55.91	188.3	6.28	6.25	16.57	25.19	
1020		4.34	55.80	188.9	6.37	3.67	16.55	25.19	
1025		4.34	56.17	190.1	6.38	2.99	16.76	25.19	
1030		4.34	55.96	190.4	6.41	3.11	16.67	25.19	~1.2 gal

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **3 %** ORP: +/- **10** D.O.: +/- **10 %** TURB: +/- **10 %** or </= **5** TEMP.: +/- **3 %**

BOTTLES FILLED — PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
2	250 mL	PLASTIC	B	☐ Y ☑ N					☐ Y ☐ N
2	250 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
1	125 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD:	DATE SHIPPED:	AIRBILL NUMBER:
COC NUMBER:	SIGNATURE:	DATE SIGNED:

REVISED 06/2011

TRC

WATER SAMPLE LOG

PROJECT NAME:	Wateree Station LF-CCR	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0005.0000.2.2	BY: RPC	DATE: 03/15	BY: JAY	DATE: 3/21/23

SAMPLE ID: MW-LF-06 | WELL DIAMETER: ☑ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 1000	DATE: 03/15

PURGE METHOD: ☑ PUMP BLADDER PUMP (DEDICATED) ☐ BAILER

DEPTH TO WATER: 31.40 T/ PVC

DEPTH TO BOTTOM: 41.10 T/ PVC

WELL VOLUME: 1.60 ☐ LITERS ☑ GALLONS

VOLUME REMOVED: 0.8 ☐ LITERS ☑ GALLONS

COLOR: Clear ODOR: None

TURBIDITY

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

SAMPLE	TIME: 1035	DATE: 03/15

PH: 4.63 SU CONDUCTIVITY: 50.96 umhos/cm

ORP: 190.0 mV DO: 7.70 mg/L

TURBIDITY: 3.66 NTU

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 13.37 °C OTHER: —

COLOR: Clear ODOR: None

FILTRATE (0.45 um) ☐ YES ☒ NO

FILTRATE COLOR: — FILTRATE ODOR: —

QC SAMPLE: ☐ MS/MSD ☐ DUP-

COMMENTS: 2.95 NTU @ 1044

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GALLONS)
1005	175	4.87	75.31	152.6	7.67	40.0	9.90	31.45	INITIAL
1010	175	4.86	59.44	164.8	7.04	42.4	11.70	31.48	
1015	175	4.69	53.88	174.3	7.43	14.9	12.79	31.48	
1020	175	4.64	52.40	183.3	7.65	9.74	13.22	31.48	
1025	175	4.63	51.40	188.8	7.65	4.79	13.40	31.48	
1030	175	4.63	51.40	189.3	7.67	4.14	13.31	31.48	
1035	175	4.63	50.96	190.0	7.70	3.66	13.37	31.48	0.8

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** . COND.: +/- **3 %** ORP: +/- **10** D.O.: +/- **10 %** TURB: +/- **10 %** or </= **5** TEMP.: +/- **3 %**

BOTTLES FILLED — PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
1	250 mL	PLASTIC	B	☐ Y ☑ N					☐ Y ☐ N
1	250 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
1	125 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD:	DATE SHIPPED:	AIRBILL NUMBER:
COC NUMBER:	SIGNATURE:	DATE SIGNED:

TRC

WATER SAMPLE LOG

PROJECT NAME:	Wateree Station LF-CCR	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0005.0000.2.2	BY: JMB	DATE: 3-15-23	BY: JAI	DATE: 3/21/23

SAMPLE ID: MW-LF-07 | WELL DIAMETER: ☑ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 1242	DATE: 3-15-23

PURGE METHOD: ☑ PUMP PERISTALTIC PUMP ☐ BAILER

DEPTH TO WATER: 23.89 T/ PVC

DEPTH TO BOTTOM: 31.73 T/ PVC

WELL VOLUME: 1.3 ☐ LITERS ☑ GALLONS

VOLUME REMOVED: 2.7 ☐ LITERS ☑ GALLONS

COLOR: cloudy/hazy ODOR: none

TURBIDITY

☐ NONE ☒ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

SAMPLE	TIME: 1339	DATE: 3-15-23

PH: 4.45 SU CONDUCTIVITY: 73.18 umhos/cm

ORP: 180.3 mV DO: 7.45 mg/L

TURBIDITY: 2.60 NTU

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 19.31 °C OTHER:

COLOR: clear ODOR: none

FILTRATE (0.45 um) ☐ YES ☒ NO

FILTRATE COLOR: FILTRATE ODOR:

QC SAMPLE: ☒ MS/MSD ☐ DUP-

COMMENTS: Post turb: 2.20 Time: 1352

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GALLONS)
1243	165	4.54	70.02	204.5	10.19	19.2	14.96	24.01	INITIAL
1259		4.50	90.62	185.8	7.57	12.7	18.93	24.52	
1304		4.48	89.45	183.0	7.54	9.69	19.03	24.56	
1309		4.48	79.25	182.1	7.49	7.97	19.48	24.60	
1314		4.48	85.24	181.9	7.57	7.45	19.52	24.63	
1319		4.48	80.33	181.4	7.53	7.07	19.43	24.65	
1324		4.47	80.31	181.0	7.49	5.99	19.12	24.67	
1329		4.45	72.97	180.2	7.43	3.75	18.94	24.70	
1334		4.45	73.25	180.3	7.44	2.98	19.23	24.72	
1339		4.45	73.18	180.3	7.45	2.80	19.31	24.74	2.7

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **3 %** ORP: +/- **10** D.O.: +/- **10 %** TURB: +/- **10 %** or </= **5** TEMP.: +/- **3 %**

BOTTLES FILLED — PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
2	250 mL	PLASTIC	B	☐ Y ☑ N					☐ Y ☐ N
2	250 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
1	125 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD:	DATE SHIPPED:	AIRBILL NUMBER:
COC NUMBER:	SIGNATURE:	DATE SIGNED:

REVISED 06/2011

TRC WATER SAMPLE LOG

PROJECT NAME: Wateree Station LF-CCR	PREPARED		CHECKED	
PROJECT NUMBER: 416559.0005.0000.2.2	BY: CS	DATE: 3/15/23	BY: JAH	DATE: 3/21/23

SAMPLE ID: MW-LF-08 WELL DIAMETER: ☑ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 1240	DATE: 3/15/23	SAMPLE	TIME: 1340	DATE: 3/15/23
PURGE METHOD: ☑ PUMP PERISTALTIC PUMP ☐ BAILER			PH: 4.55 SU	CONDUCTIVITY: 42.52 umhos/cm	
			ORP: 190.4 mV	DO: 9.12 mg/L	
DEPTH TO WATER: 25.31 T/ PVC			TURBIDITY: 3.27 NTU		
DEPTH TO BOTTOM: 36.05 T/ PVC			☑ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY		
WELL VOLUME: 1.77 ☐ LITERS ☑ GALLONS			TEMPERATURE: 20.25 °C	OTHER:	
VOLUME REMOVED: 2.0 ☐ LITERS ☑ GALLONS			COLOR: clear	ODOR: N/A	
COLOR: clear	ODOR: N/A		FILTRATE (0.45 um) ☐ YES ☒ NO		
TURBIDITY ☐ NONE ☒ SLIGHT ☐ MODERATE ☐ VERY			FILTRATE COLOR:	FILTRATE ODOR:	
			QC SAMPLE: ☐ MS/MSD ☐ DUP-		
DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER			COMMENTS: post turb - 2.61 1355		

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GALLONS)
1245	180	4.51	50.20	164.5	8.22	18.3	18.65	25.39	INITIAL
1250		4.54	43.51	175.4	7.67	18.9	19.86	25.39	
1255		4.54	43.45	179.3	9.75	14.8	19.54	25.39	
1300		4.54	44.17	182.6	9.42	12.4	19.87	25.39	
1305		4.54	43.48	185.4	7.89	11.0	20.24	25.40	
1310		4.55	42.62	187.0	9.24	8.12	20.06	25.40	
1315		4.55	42.81	188.0	9.54	6.48	20.12	25.40	
1320		4.54	42.47	188.9	9.29	6.30	20.30	25.40	
1325		4.55	42.75	189.5	7.35	4.80	20.22	25.40	
1330		4.55	42.53	190.1	7.53	4.69	20.12	25.40	

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **3 %** ORP: +/- **10** D.O.: +/- **10 %** TURB: +/- **10 %** or </= **5** TEMP.: +/- **3 %**

BOTTLES FILLED — PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
2	250 mL	PLASTIC	B	☐ Y ☑ N					☐ Y ☐ N
2	250 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
1	125 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD:	DATE SHIPPED:	AIRBILL NUMBER:
COC NUMBER:	SIGNATURE:	DATE SIGNED:

TRC

WATER SAMPLE LOG

(CONTINUED FROM PREVIOUS PAGE)

PROJECT NAME:	Wateree Station LF-CCR	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0005.0000.2.2	BY: JB / RC / CS	DATE: 3/15/23	BY: JAH	DATE: 3/21/23

SAMPLE ID: MW-LF-08

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GALLONS)
1333	180	4.54	42.43	189.9	9.14	4.19	20.03	25.40	
1336		4.54	42.63	190.2	9.31	3.60	20.12	25.40	
1339		4.55	42.52	190.4	9.12	3.27	20.25	25.40	~2 gal

SIGNATURE: 3/15/23

DATE SIGNED:

TRC WATER SAMPLE LOG

PROJECT NAME:	Wateree Station LF-CCR	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0005.0000.2.2	BY: JMB	DATE: 3-15-23	BY: SAH	DATE: 3/21/23

SAMPLE ID: MW-LF-10A WELL DIAMETER: ☑ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 1108	DATE: 3-15-23	SAMPLE	TIME: 1208	DATE: 3-15-23

PURGE METHOD: ☑ PUMP PERISTALTIC PUMP ☐ BAILER

DEPTH TO WATER: 20.08 T/ PVC

DEPTH TO BOTTOM: 28.69 T/ PVC

WELL VOLUME: 1.42 ☐ LITERS ☑ GALLONS

VOLUME REMOVED: 2.6 ☐ LITERS ☑ GALLONS

COLOR: cloudy/hazy ODOR: none

TURBIDITY ☐ NONE ☒ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

PH: 4.62 SU CONDUCTIVITY: 44.36 umhos/cm

ORP: 187.3 mV DO: 5.68 mg/L

TURBIDITY: 3.29 NTU

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 17.09 °C OTHER:

COLOR: clear ODOR: none

FILTRATE (0.45 um) ☐ YES ☐ NO

FILTRATE COLOR: FILTRATE ODOR:

QC SAMPLE: ☐ MS/MSD ☒ DUP WAT-CCR-LF-2310

COMMENTS: Post turb: 3.14 Time: 1220

FBLF-WAT-CCR-LF-23109 collected @ 1225

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GALLONS)
1111	165	4.52	52.56	216.3	6.55	29.5	14.40	20.10	INITIAL
1128		4.57	50.09	203.4	5.78	15.2	17.12	20.10	
1133		4.60	47.24	197.6	5.71	11.1	17.20	20.10	
1138		4.60	45.75	195.1	5.70	9.70	17.18	20.10	
1143		4.60	46.13	193.8	5.72	6.96	17.07	20.10	
1148		4.58	49.48	192.8	5.75	4.69	17.18	20.10	
1153		4.60	45.66	191.1	5.76	4.02	17.17	20.10	
1158		4.60	44.06	189.5	5.70	3.79	17.07	20.10	
1203		4.62	44.11	188.8	5.70	3.43	17.02	20.10	
1208		4.62	44.36	187.3	5.68	3.29	17.09	20.10	2.6

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **3 %** ORP: +/- **10** D.O.: +/- **10 %** TURB: +/- **10 %** or </= **5** TEMP.: +/- **3 %**

BOTTLES FILLED — PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
2	250 mL	PLASTIC	B	☐ Y ☑ N					☐ Y ☐ N
2	250 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
1	125 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD:		DATE SHIPPED:		AIRBILL NUMBER:	
COC NUMBER:		SIGNATURE:		DATE SIGNED:	

REVISED 06/2011

TRC

WATER SAMPLE LOG

PROJECT NAME:	Wateree Station LF-CCR	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0005.0000.2.2	BY: CS	DATE: 3/15/23	BY: JAM	DATE: 3/21/23

SAMPLE ID: MW-LF-11 | WELL DIAMETER: ☑ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 1105	DATE: 3/15/23	SAMPLE	TIME: 1155	DATE: 3/15/23
PURGE METHOD:	☑ PUMP PERISTALTIC PUMP ☐ BAILER		PH: 4.55 SU	CONDUCTIVITY: 66.10 umhos/cm	
			ORP: 245.9 mV	DO: 7.70 mg/L	
DEPTH TO WATER:	21.84 T/ PVC		TURBIDITY: 8.12 NTU		
DEPTH TO BOTTOM:	30.25 T/ PVC		☐ NONE ☑ SLIGHT ☐ MODERATE ☐ VERY		
WELL VOLUME:	1.4 ☐ LITERS ☑ GALLONS		TEMPERATURE: 17.14 °C	OTHER:	
VOLUME REMOVED:	1.0 ☐ LITERS ☑ GALLONS		COLOR: Clear	ODOR: N/A	
COLOR:	Cloudy ODOR: N/A		FILTRATE (0.45 um) ☐ YES ☒ NO		
TURBIDITY	☐ NONE ☐ SLIGHT ☒ MODERATE ☐ VERY		FILTRATE COLOR:	FILTRATE ODOR:	
			QC SAMPLE: ☐ MS/MSD	☐ DUP-	
DISPOSAL METHOD:	☐ GROUND ☐ DRUM ☑ OTHER		COMMENTS: post turb 6.49 1205		

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GALLONS)
1110	150	4.59	68.31	159.8	7.72	154	18.30	21.89	INITIAL
1115		4.56	71.42	185.3	8.22	84.5	17.24	21.92	
1120		4.56	71.53	199.2	8.19	55.1	17.04	21.92	
1125		4.56	72.14	209.9	8.26	23.0	16.61	21.92	
1130		4.55	71.84	225.7	8.32	15.7	16.51	21.92	
1135		4.56	70.70	231.1	8.08	12.8	16.41	21.92	
1140		4.55	70.43	236.8	8.11	12.4	16.42	21.92	
1145		4.54	68.82	240.6	8.00	8.80	16.69	21.92	
1150		4.55	66.69	244.6	7.73	7.54	16.99	21.92	
1155		4.55	66.10	245.9	7.70	8.12	17.14	21.92	1 gal

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **3 %** ORP: +/- **10** D.O.: +/- **10 %** TURB: +/- **10 %** or </= **5** TEMP.: +/- **3 %**

BOTTLES FILLED — PRESERVATIVE CODES: A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
2	250 mL	PLASTIC	B	☐ Y ☑ N					☐ Y ☐ N
2	250 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
2	125 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD:		DATE SHIPPED:		AIRBILL NUMBER:	
COC NUMBER:		SIGNATURE:		DATE SIGNED:	

TRC

WATER SAMPLE LOG

PROJECT NAME:	Wateree Station AP-NPDES	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0005.0000.6.2	BY: RPC	DATE: 03/14	BY: JM	DATE: 3/21/23

SAMPLE ID: MW-22 / MW-LF-22 WELL DIAMETER: ☑ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 1605	DATE: 03/14	SAMPLE	TIME: 1650	DATE: 03/14
PURGE METHOD:	☑ PUMP PERISTALTIC PUMP ☐ BAILER		PH: 4.43 SU	CONDUCTIVITY: 82.24 umhos/cm	
			ORP: 484.5 mV	DO: 2.67 mg/L	
DEPTH TO WATER: 22.60 T/ PVC			TURBIDITY: 4.00 NTU		
DEPTH TO BOTTOM: 34.49 T/ PVC			☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY		
WELL VOLUME: 1.96 ☐ LITERS ☑ GALLONS			TEMPERATURE: 19.88 °C	OTHER: —	
VOLUME REMOVED: 2.10 ☐ LITERS ☑ GALLONS			COLOR: clear	ODOR: None	
COLOR: clear ODOR: None			FILTRATE (0.45 um) ☐ YES ☑ NO		
TURBIDITY ☐ NONE ☒ SLIGHT ☐ MODERATE ☐ VERY			FILTRATE COLOR —	FILTRATE ODOR: —	
			QC SAMPLE: ☐ MS/MSD ☐ DUP-		
DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER			POST TURBIDITY: 2.87 NTU	TIME: 1709	
			COMMENTS:		

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GALLONS)
1610	150	4.43	86.61	383.6	2.59	40.7	20.11	22.65	INITIAL
1615	150	4.41	87.15	424.6	2.53	24.8	19.95	22.65	
1620	150	4.42	86.22	452.6	2.49	15.0	20.10	22.65	
1625	150	4.41	86.33	458.4	2.49	13.1	19.95	22.65	
1630	150	4.42	86.31	475.1	2.54	8.64	19.91	22.65	
1635	150	4.43	85.35	480.8	2.56	6.81	19.91	22.65	
1640	150	4.41	85.69	483.4	2.63	4.99	19.91	22.65	
1645	150	4.42	85.49	483.9	2.66	4.35	20.19	22.65	
1650	150	4.43	85.24	484.5	2.67	4.00	19.88	22.65	2.10

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **3 %** ORP: +/- D.O.: +/- TURB: +/- **10 %** or </= **5** TEMP.: +/-

BOTTLES FILLED		PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____							
NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
1	250 mL	PLASTIC	B	☐ Y ☑ N					☐ Y ☐ N
1	250 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
1	125 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
1	250 mL	AMBER	C	☐ Y ☑ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD:	DATE SHIPPED:	AIRBILL NUMBER:
COC NUMBER:	SIGNATURE:	DATE SIGNED:

~~REVISED 06/2011~~

WATER SAMPLE LOG

PROJECT NAME:	Wateree Station LF-CCR	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0005.0000.2.2	BY: RPC	DATE: 3/15	BY: JAY	DATE: 3/21/23

SAMPLE ID: ~~RC AS-LF-02~~ AS-LF-01 | WELL DIAMETER: ☑ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 1115	DATE: 3/15	SAMPLE	TIME: 1140	DATE: 3/15
PURGE METHOD:	☑ PUMP ☐ BAILER	BLADDER PUMP (DEDICATED) CPM4 R10 DS 35 PSI	PH: 4.54 SU	CONDUCTIVITY: 61.43 umhos/cm	
			ORP: 181.8 mV	DO: 7.77 mg/L	
DEPTH TO WATER: 33.05 T/ PVC			TURBIDITY: 2.40 NTU		
DEPTH TO BOTTOM: ~~RC 55.66~~ T/ PVC 48.85			☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY		
WELL VOLUME: 2.60 ☐ LITERS ☑ GALLONS			TEMPERATURE: 17.18 °C	OTHER: —	
VOLUME REMOVED: 2.0 ☐ LITERS ☑ GALLONS			COLOR: Clear	ODOR: None	
COLOR: Clear	ODOR: None		FILTRATE (0.45 um) ☐ YES ☒ NO		
TURBIDITY			FILTRATE COLOR: —	FILTRATE ODOR: —	
☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY			QC SAMPLE: ☐ MS/MSD ☐ DUP-		
DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER			COMMENTS: 2.10 NTU @ 1145		

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GALLONS)
1120	200	4.44	65.14	173.9	7.16	11.19	15.69	33.05	INITIAL
1125	200	4.53	61.69	179.0	7.55	6.32	17.27	33.10	
1130	200	4.54	61.65	181.0	7.71	3.66	17.33	33.10	
1135	200	4.54	61.47	181.7	7.76	2.80	17.37	33.10	
1140	200	4.54	61.43	181.8	7.77	2.40	17.18	33.10	2.0

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **3 %** ORP: +/- **10** D.O.: +/- **10 %** TURB: +/- **10 %** or **</= 5** TEMP.: +/- **3 %**

BOTTLES FILLED — PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
2	250 mL	PLASTIC	B	☐ Y ☑ N					☐ Y ☐ N
2	250 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
1	125 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD:	DATE SHIPPED:	AIRBILL NUMBER:
COC NUMBER:	SIGNATURE:	DATE SIGNED:

REVISED 06/2011

TRC

WATER SAMPLE LOG

PROJECT NAME: Wateree Station LF-CCR	PREPARED		CHECKED	
PROJECT NUMBER: 416559.0005.0000.2.2	BY: RPC	DATE: 03/15	BY: JAY	DATE: 3/21/23

SAMPLE ID: ~~RC AS-LF-01~~ AS-LF-02 WELL DIAMETER: ☑ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 1230	DATE: 03/15

PURGE METHOD: ☑ PUMP BLADDER PUMP (DEDICATED) ☐ BAILER

DEPTH TO WATER: 33.90 T/ PVC

DEPTH TO BOTTOM: ~~RC 48.85~~ T/ PVC 55.66

WELL VOLUME: 3.6 ☐ LITERS ☑ GALLONS

VOLUME REMOVED: 2.8 ☐ LITERS ☑ GALLONS

COLOR: light brown ODOR: None

TURBIDITY

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

SAMPLE	TIME: 1312	DATE: 03/15

PH: 5.30 SU CONDUCTIVITY: 39.64 umhos/cm

ORP: 159.2 mV DO: 2.51 mg/L

TURBIDITY: 1.66 NTU

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 18.34 °C OTHER: —

COLOR: clear ODOR: None

FILTRATE (0.45 um) ☐ YES ☒ NO

FILTRATE COLOR: — FILTRATE ODOR: —

QC SAMPLE: ☐ MS/MSD ☐ DUP- _____

COMMENTS: 1.22 NTU @ 1318

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GALLONS)
1235	130	5.29	39.22	186.1	2.43	18.40	18.28	35.60	INITIAL
1240	130	5.27	36.82	180.5	3.89	13.30	18.49	36.40	
1245	130	5.28	37.02	176.7	4.05	4.79	18.28	37.40	
1250	130	5.29	37.79	171.8	3.63	3.06	18.48	37.60	
1255	130	5.31	38.94	167.0	3.16	1.95	18.44	38.40	
1300	130	5.30	39.50	163.3	2.78	2.19	18.35	38.51	
1303	130	5.30	39.60	161.5	2.64	1.91	18.34	38.70	
1306	130	5.30	39.62	160.6	2.60	1.85	18.20	38.72	
1309	130	5.29	39.73	159.5	2.55	1.81	18.33	38.75	
1312	130	5.30	39.64	159.2	2.51	1.66	18.34	38.81	2.8

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **3 %** ORP: +/- **10** D.O.: +/- **10 %** TURB: +/- **10 %** or </= **5** TEMP.: +/- **3 %**

BOTTLES FILLED — PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
3	250 mL	PLASTIC	B	☐ Y ☑ N					☐ Y ☐ N
2	250 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
1	125 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
1	2 L	PLASTIC	B	☐ Y ☐ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD:	DATE SHIPPED:	AIRBILL NUMBER:
COC NUMBER:	SIGNATURE:	DATE SIGNED:

WATER SAMPLE LOG

PROJECT NAME:	Wateree Station LF-CCR	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0005.0000.2.2	BY: JMB	DATE: 3-15-23	BY: BJM	DATE: 3/21/23

SAMPLE ID: AS-LF-03 WELL DIAMETER: ☑ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 0945	DATE: 3-15-23	SAMPLE	TIME: 1028	DATE: 3-15-23

PURGE METHOD: ☑ PUMP PERISTALTIC PUMP ☐ BAILER

DEPTH TO WATER: 27.36 T/ PVC

DEPTH TO BOTTOM: 38.07 T/ PVC

WELL VOLUME: 1.76 ☐ LITERS ☑ GALLONS

VOLUME REMOVED: 1.8 ☐ LITERS ☑ GALLONS

COLOR: clear ODOR: none

TURBIDITY ☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

PH: 4.30 SU CONDUCTIVITY: 60.22 umhos/cm

ORP: 231.2 mV DO: 6.89 mg/L

TURBIDITY: 1.90 NTU

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 18.13 °C OTHER:

COLOR: clear ODOR: none

FILTRATE (0.45 um) ☐ YES ☒ NO

FILTRATE COLOR: FILTRATE ODOR:

QC SAMPLE: ☐ MS/MSD ☐ DUP-

COMMENTS: Post turb: 1.19 Time: 1100

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GALLONS)
0953	150	4.26	69.25	141.8	7.54	4.57	15.23	27.40	INITIAL
1013	|	4.30	60.50	217.1	7.05	3.09	18.14	27.40	|
1018	|	4.30	60.19	236.1	6.93	2.62	18.05	27.40	|
1023	|	4.33	60.19	233.7	7.03	2.12	18.09	27.40	|
1028	|	4.30	60.22	231.2	6.89	1.90	18.13	27.40	1.8

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **3 %** ORP: +/- **10** D.O.: +/- **10 %** TURB: +/- **10 %** or </= **5** TEMP.: +/- **3 %**

BOTTLES FILLED — PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
2	250 mL	PLASTIC	B	☐ Y ☑ N					☐ Y ☐ N
2	250 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
1	125 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD:	DATE SHIPPED:	AIRBILL NUMBER:
COC NUMBER:	SIGNATURE:	DATE SIGNED:

TRC

WATER SAMPLE LOG

PROJECT NAME:	Wateree Station LF-CCR	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0005.0000.2.2	BY: RPC	DATE: 3/15	BY: JAH	DATE: 3/21/23

SAMPLE ID: MW-BG-73 | WELL DIAMETER: ☑ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 1350	DATE: 3/15

PURGE METHOD: ☑ PUMP PERISTALTIC PUMP ☐ BAILER

DEPTH TO WATER: 6.95 T/ PVC

DEPTH TO BOTTOM: 23.38 T/ PVC

WELL VOLUME: 2.7 ☐ LITERS ☑ GALLONS

VOLUME REMOVED: 1.0 ☐ LITERS ☑ GALLONS

COLOR: clear ODOR: None

TURBIDITY

☐ NONE ☒ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

SAMPLE	TIME: 1420	DATE: 3/15

PH: 4.65 SU CONDUCTIVITY: 22.99 umhos/cm

ORP: 163.3 mV DO: 6.17 mg/L

TURBIDITY: 11.53 NTU

☐ NONE ☒ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 18.44 °C OTHER: —

COLOR: clear ODOR: None

FILTRATE (0.45 um) ☐ YES ☒ NO

FILTRATE COLOR: — FILTRATE ODOR: —

QC SAMPLE: ☐ MS/MSD ☐ DUP-

COMMENTS: 5.74 NTU @ 1430

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GALLONS)
1355	160	4.64	22.65	162.7	6.18	12.06	18.90	7.12	INITIAL
1400	160	4.63	22.77	155.9	6.24	17.40	18.62	7.12	
1405	160	4.64	22.79	158.8	6.29	14.70	18.70	7.12	
1410	160	4.65	22.80	160.0	6.19	12.10	18.70	7.15	
1415	160	4.66	22.94	162.6	6.15	11.94	18.48	7.15	
1420	160	4.65	22.99	163.3	6.17	11.53	18.44	7.15	1.0

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **3 %** ORP: +/- **10** D.O.: +/- **10 %** TURB: +/- **10 %** or </= **5** TEMP.: +/- **3 %**

BOTTLES FILLED — PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
2	250 mL	PLASTIC	B	☐ Y ☑ N					☐ Y ☐ N
2	250 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
1	125 mL	PLASTIC	A	☐ Y ☑ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD:	DATE SHIPPED:	AIRBILL NUMBER:
COC NUMBER:	SIGNATURE:	DATE SIGNED:

TRC

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	Wateree Station	MODEL:	Aquatroll 400	SAMPLER:	JB / RC (CS)
PROJECT NO.:	416559.0005.0000	SERIAL #:	851425	DATE:	3/14/23

PH CALIBRATION CHECK

pH 7 (LOT #): 2216893 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	pH 4 / 10 (LOT #): Auto Cal / 21326202 (EXP. DATE): Auto Cal / 12/23 PRE-CAL. READING / STANDARD	CAL. RANGE	TIME
7.11 / 7.00	9.91 / 10.00	☐ WITHIN RANGE	0856
/	4.33 / 4.00	☐ WITHIN RANGE	0858
post 7.02 / 7.00	9.98 / 10.00	☒ WITHIN RANGE	0858
/	3.99 / 4.00	☒ WITHIN RANGE	0859

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): 22250153 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
4335.7 / 4490	11.76	☐ WITHIN RANGE	
/		☐ WITHIN RANGE	
post 4492.4 / 4490	11.70	☒ WITHIN RANGE	0900
/		☐ WITHIN RANGE	

ORP CALIBRATION CHECK

CAL. READING (LOT #): 21390144 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
232.7 / 228	11.19	☐ WITHIN RANGE	
post 227.6 / 228	11.24	☒ WITHIN RANGE	0855
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CALIBRATION READING (mg/L)	CAL. RANGE	TIME
Temp - 15.52	☒ WITHIN RANGE	0905
Pressure - 762.69	☐ WITHIN RANGE	
Oxygen Sol - 9.30	☐ WITHIN RANGE	
Actual - 10.08	☐ WITHIN RANGE	

TURBIDITY CALIBRATION CHECK

CALIBRATION READING (NTU) (LOT #): 1511-4111 (EXP. DATE): n/a PRE-CAL. READING / STANDARD	CALIBRATION READING (NTU) (LOT #): n/a (EXP. DATE): n/a POST-CAL. READING / STANDARD	CAL. RANGE	TIME
0.02 / 0.00	0.02 / 0.00	☒ WITHIN RANGE	0905
0.71 / 1.00	0.98 / 1.00	☒ WITHIN RANGE	0906
9.33 / 10.00	9.92 / 10.00	☒ WITHIN RANGE	0907
/	/	☐ WITHIN RANGE	

COMMENTS

☒ AUTOCAL SOLUTION (LOT #): 22250153 (EXP. DATE): 11/23

☐ STANDARD SOLUTION (S)

LIST LOT NUMBERS AND EXPIRATION DATES UNDER CALIBRATION CHECK

CALIBRATED PARAMETERS	CALIBRATION RANGES (1)	
☒ pH (4)	pH:	+/- 0.2 S.U.
☒ COND	COND:	+/- 1% OF CAL. STANDARD
☐ ORP	ORP:	+/- 25 mV
☐ D.O.	D.O.:	VARIES
☐ TURB	TURB:	+/- 5% OF CAL. STANDARD
☐ _____	(1) CALIBRATION RANGES ARE SPECIFIC TO THE MODEL OF THE WATER QUALITY METER	
☐ _____		

NOTES

none

PROBLEMS ENCOUNTERED	CORRECTIVE ACTIONS
none	none

SIGNED _____ 3/14/23 DATE

CHECKED BY _____ 3/21/23 DATE

REVISED 06/2011

TRC

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	Wateree Station	MODEL:	Aqua Troll	SAMPLER:	JB / RC / CS
PROJECT NO.:	416559.0005.0000	SERIAL #:	909268	DATE:	03/14/2023

PH CALIBRATION CHECK

CAL

pH 7 (LOT #): 2216893 (EXP. DATE): 11/2023 PRE-CAL. READING / STANDARD	pH 4 / 10 (LOT #): 21320202 (EXP. DATE): 12/2023 PRE-CAL. READING / STANDARD	CAL. RANGE	TIME
6.65 / 7.00	4.36 / 4.00	☒ WITHIN RANGE	0859
/	9.95 / 10.00	☐ WITHIN RANGE	
7.02 / 7.00	4.00 / 4.00	☒ WITHIN RANGE	0852
/	10.05 / 10.00	☒ WITHIN RANGE	0856

ORP CALIBRATION CHECK

CAL. READING (LOT #): 21390144 (EXP. DATE): 11/2023 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
229.3 / 228	18.70	☐ WITHIN RANGE	
228 / 228	18.20	☒ WITHIN RANGE	0920
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

TURBIDITY CALIBRATION CHECK

CALIBRATION READING (NTU) (LOT #): — (EXP. DATE): — PRE-CAL. READING / STANDARD	(LOT #): — (EXP. DATE): — POST-CAL. READING / STANDARD	CAL. RANGE	TIME
0.06 / 0.00	0.06 / 0.00	☒ WITHIN RANGE	0918
0.91 / 1.00	0.98 / 1.00	☒ WITHIN RANGE	0920
11.17 / 10.00	10.06 / 10.00	☒ WITHIN RANGE	0922
/	/	☐ WITHIN RANGE	

NOTES

n/a

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): 22250153 (EXP. DATE): 11/2023 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
4428 / 4490	18.50	☐ WITHIN RANGE	
4491.0 / 4490	14.30	☒ WITHIN RANGE	0902
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CALIBRATION READING (mg/L)	CAL. RANGE	TIME
Temp: 20.29	☐ WITHIN RANGE	
Baro: 763.12	☐ WITHIN RANGE	
Calc: 11.30	☒ WITHIN RANGE	0917
Act: 10.02	☐ WITHIN RANGE	

COMMENTS

☒ AUTOCAL SOLUTION (LOT #): 21470032 (EXP. DATE): 4/23

☐ STANDARD SOLUTION (S)

LIST LOT NUMBERS AND EXPIRATION DATES UNDER CALIBRATION CHECK

CALIBRATED PARAMETERS		CALIBRATION RANGES [1]	
☒	pH	pH:	+/- 0.2 S.U.
☒	COND	COND:	+/- 1% OF CAL. STANDARD
☐	ORP	ORP:	+/- 25 mV
☐	D.O.	D.O.:	VARIES
☐	TURB	TURB:	+/- 5% OF CAL. STANDARD
☐	_____	[1] CALIBRATION RANGES ARE SPECIFIC TO THE MODEL OF THE WATER QUALITY METER	
☐	_____		

PROBLEMS ENCOUNTERED	CORRECTIVE ACTIONS
none	none

SIGNED _____ 3/14/23 DATE

CHECKED BY _____ 3/21/23 DATE

REVISED 06/2011

TRC

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	Wateree Station	MODEL: Aqua Troll	SAMPLER: JB / RC / CS
PROJECT NO.:	416559.0005.0000	SERIAL #: 883546	DATE: 03/14/2023

PH CALIBRATION CHECK

pH 7 (LOT #): 2216893 (EXP. DATE): 11/2023 PRE-CAL. READING / STANDARD	pH 4 / 10 (LOT #): 21320202 (EXP. DATE): 12/2023 PRE-CAL. READING / STANDARD	CAL. RANGE	TIME
6.83 / 7.00	4.17 / 4.00	☒ WITHIN RANGE	0900
/	10.08 / 10.00	☐ WITHIN RANGE	
7.05 / 7.00	3.99 / 4.00	☒ WITHIN RANGE	0853
/	10.16 / 10.00	☒ WITHIN RANGE	0857

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): 22250153 (EXP. DATE): 11/2023 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
~~3453.0~~ RC / 4490	9.98	☐ WITHIN RANGE	
4485.1 / ~~4490~~ RC	~~9.92~~ RC	☐ WITHIN RANGE	
4494.8 / 4490	9.92	☒ WITHIN RANGE	0905
/		☐ WITHIN RANGE	

ORP CALIBRATION CHECK

CAL. READING (LOT #): 21390144 (EXP. DATE): 11/2023 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
238.6 / 228	11.38	☐ WITHIN RANGE	
227.9 / 228	11.03	☒ WITHIN RANGE	0914
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CALIBRATION READING (mg/L)	CAL. RANGE	TIME
Temp: 12.07	☐ WITHIN RANGE	
Baro: 763.54	☐ WITHIN RANGE	
Calc: 10.60	☒ WITHIN RANGE	0912
Act: 12.67	☐ WITHIN RANGE	

TURBIDITY CALIBRATION CHECK

CALIBRATION READING (NTU) (LOT #): ~~~ (EXP. DATE): ~~~ PRE-CAL. READING / STANDARD	(LOT #): ~~~ (EXP. DATE): ~~~ POST-CAL. READING / STANDARD	CAL. RANGE	TIME
0.03 / 0.00	0.03 0.00	☒ WITHIN RANGE	0925
0.81 / 1.00	0.98 / 1.00	☒ WITHIN RANGE	0927
12.01 / 10.00	10.17 / 10.00	☒ WITHIN RANGE	0929
/	/	☐ WITHIN RANGE	

COMMENTS

☒ AUTOCAL SOLUTION (LOT #): 21470032 (EXP. DATE): 04/2023

☐ STANDARD SOLUTION (S) — LIST LOT NUMBERS AND EXPIRATION DATES UNDER CALIBRATION CHECK

CALIBRATED PARAMETERS		CALIBRATION RANGES [1]	
☒	pH	pH:	+/- 0.2 S.U.
☒	COND	COND:	+/- 1% OF CAL. STANDARD
☐	ORP	ORP:	+/- 25 mV
☐	D.O.	D.O.:	VARIES
☐	TURB	TURB:	+/- 5% OF CAL. STANDARD
☐	_____	[1] CALIBRATION RANGES ARE SPECIFIC TO THE MODEL OF THE WATER QUALITY METER	
☐	_____		

NOTES

n/a

PROBLEMS ENCOUNTERED	CORRECTIVE ACTIONS
none	none

SIGNED _____ 3/14/23 DATE

CHECKED BY _____ 3/21/23 DATE

REVISED 06/2011

TRC

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	Wateree Station	MODEL: Aqua Troll 400	SAMPLER: (JB) / RC / CS
PROJECT NO.:	416559.0005.0000	SERIAL #: 883546	DATE: 3-15-23

PH CALIBRATION CHECK

pH 7 (LOT #): 2216893 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	pH 4 / 10 (LOT #): 21320202 (EXP. DATE): 12/23 PRE-CAL. READING / STANDARD	CAL. RANGE	TIME
6.89 / 7.00	10.02 / 10.00	[X] WITHIN RANGE	0856
/	4.26 / 4.00	[ ] WITHIN RANGE	0902
7.07 / 7.00	10.02 / 10.00	[X] WITHIN RANGE	0857
/	4.00 / 4.00	[X] WITHIN RANGE	0903

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): 21470032 (EXP. DATE): 4/23 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
4414.3 / 4490.0	13.66	[X] WITHIN RANGE	0904
4481.6 / 4490.0	13.37	[X] WITHIN RANGE	0905
/		[ ] WITHIN RANGE	
/		[ ] WITHIN RANGE	

ORP CALIBRATION CHECK

CAL. READING (LOT #): 2139044 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
231.0 / 228.0	10.42	[X] WITHIN RANGE	0908
227.7 / 228.0	10.14	[X] WITHIN RANGE	0909
/		[ ] WITHIN RANGE	
/		[ ] WITHIN RANGE	

D.O. CALIBRATION CHECK

CALIBRATION READING (mg/L)	CAL. RANGE	TIME
Baro: 767.04 mmHg Temp: 10.50°C Act: 11.21 mg/L Calc: 11.2 mg/L	[X] WITHIN RANGE	0853
	[ ] WITHIN RANGE	
	[ ] WITHIN RANGE	
	[ ] WITHIN RANGE	

TURBIDITY CALIBRATION CHECK

CALIBRATION READING (NTU) (LOT #): n/a (EXP. DATE): n/a PRE-CAL. READING / STANDARD	(LOT #): n/a (EXP. DATE): n/a POST-CAL. READING / STANDARD	CAL. RANGE	TIME
0.02 / 0.00	0.01 / 0.00	[X] WITHIN RANGE	0854
1.04 / 1.00	1.02 / 1.00	[X] WITHIN RANGE	855
10.10 / 10.00	10.00 / 10.00	[X] WITHIN RANGE	0856
/	/	[ ] WITHIN RANGE	

COMMENTS

[X] AUTOCAL SOLUTION (LOT #): 21470032 (EXP. DATE): 4/23

[ ] STANDARD SOLUTION (S)

LIST LOT NUMBERS AND EXPIRATION DATES UNDER CALIBRATION CHECK

CALIBRATED PARAMETERS		CALIBRATION RANGES [1]	
[X]	pH	pH:	+/- 0.2 S.U.
[X]	COND	COND:	+/- 1% OF CAL. STANDARD
[ ]	ORP	ORP:	+/- 25 mV
[ ]	D.O.	D.O.:	VARIES
[ ]	TURB	TURB:	+/- 5% OF CAL. STANDARD
[ ]	_____	[1] CALIBRATION RANGES ARE SPECIFIC TO THE MODEL OF THE WATER QUALITY METER	
[ ]	_____		

NOTES

none

PROBLEMS ENCOUNTERED	CORRECTIVE ACTIONS
n/a	n/a

Jacob Bradley — SIGNED — 3/15/23 — DATE

CHECKED BY — 3/21/23 — DATE

REVISED 06/2011

TRC

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	Wateree Station	MODEL: Aqua Troll 400	SAMPLER: JB / RC / CS
PROJECT NO.:	416559.0005.0000	SERIAL #: 851425	DATE: 3/15/23

PH CALIBRATION CHECK

pH 7 (LOT #): 221689 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	pH 4 / 10 (LOT #): Auto Cal / 21320202 (EXP. DATE): 1123 PRE-CAL. READING / STANDARD	CAL. RANGE	TIME
7.01 / 7.00	9.88 / 10.00	☐ WITHIN RANGE	
/	4.36 / 4.06	☐ WITHIN RANGE	
Post 7.01 / 7.00	10.03 / 10.00	☑ WITHIN RANGE	0825
/	4.01 / 4.00	☑ WITHIN RANGE	0828

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): 21470032 (EXP. DATE): 4/23 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
4536.1 / 4490	9.80	☐ WITHIN RANGE	
Post 4492.2 / 4490	8.97	☑ WITHIN RANGE	0835
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

ORP CALIBRATION CHECK

CAL. READING (LOT #): 21340144 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
240.8 / 228.0	9.07	☐ WITHIN RANGE	837
Post 227.9 / 228.0	9.13	☑ WITHIN RANGE	0838
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CALIBRATION READING (mg/L)	CAL. RANGE	TIME
Temp - 6.87°C Pressure - 786.02 mmHg Oxygen Sol - 11.43 mg/L Calculated - 11.98 mg/L	☑ WITHIN RANGE	0925
	☐ WITHIN RANGE	
	☐ WITHIN RANGE	
	☐ WITHIN RANGE	

TURBIDITY CALIBRATION CHECK

CALIBRATION READING (NTU) (LOT #): n/a (EXP. DATE): n/a PRE-CAL. READING / STANDARD	CALIBRATION READING (NTU) (LOT #): n/a (EXP. DATE): n/a POST-CAL. READING / STANDARD	CAL. RANGE	TIME
0.09 / 0.00	0.09 / 0.00	☒ WITHIN RANGE	0841
0.83 / 1.00	1.04 / 1.00	☑ WITHIN RANGE	0842
8.99 / 10.00	9.96 / 10.00	☒ WITHIN RANGE	0845
/	/	☐ WITHIN RANGE	

COMMENTS

☑ AUTOCAL SOLUTION (LOT #): 2225153 (EXP. DATE): 11/23	☐ STANDARD SOLUTION (S) LIST LOT NUMBERS AND EXPIRATION DATES UNDER CALIBRATION CHECK
CALIBRATED PARAMETERS	CALIBRATION RANGES [1]
☑ pH	pH: +/- 0.2 S.U.
☑ COND	COND: +/- 1% OF CAL. STANDARD
☐ ORP	ORP: +/- 25 mV
☐ D.O.	D.O.: VARIES
☐ TURB	TURB: +/- 5% OF CAL. STANDARD
☐ _____	[1] CALIBRATION RANGES ARE SPECIFIC TO THE MODEL OF THE WATER QUALITY METER
☐ _____	

NOTES

n/a

PROBLEMS ENCOUNTERED	CORRECTIVE ACTIONS
none	none

SIGNED 3/15/23 DATE

CHECKED BY 3/21/23 DATE

REVISED 06/2011

TRC

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	Wateree Station	MODEL:	AquaTroll	SAMPLER:	JB / (RC) / CS
PROJECT NO.:	416559.0005.0000	SERIAL #:	909268	DATE:	03/15/23

PH CALIBRATION CHECK

pH 7 (LOT #): 2216893 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	pH 4 / 10 (LOT #): 21320202 (EXP. DATE): 12/23 PRE-CAL. READING / STANDARD	CAL. RANGE	TIME
6.80 / 7.00	9.94 / 10.00	☒ WITHIN RANGE	0840
/	4.38 / 4.00	☐ WITHIN RANGE	
7.01 / 7.00	10.09 / 10.00	☒ WITHIN RANGE	0839
/	4.00 / 4.00	☒ WITHIN RANGE	0845

ORP CALIBRATION CHECK

CAL. READING (LOT #): 2139044 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
239.5 / 228	15.40	☐ WITHIN RANGE	
228.1 / 228	15.65	☒ WITHIN RANGE	0901
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

TURBIDITY CALIBRATION CHECK

CALIBRATION READING (NTU) (LOT #): n/a (EXP. DATE): n/a PRE-CAL. READING / STANDARD	(LOT #): n/a (EXP. DATE): n/a POST-CAL. READING / STANDARD	CAL. RANGE	TIME
0.10 / 0.00	0.10 / 0.00	☒ WITHIN RANGE	0852
0.84 / 1.00	0.97 / 1.00	☒ WITHIN RANGE	0853
10.18 / 10.00	10.07 / 10.00	☒ WITHIN RANGE	0854
/	/	☐ WITHIN RANGE	

NOTES

none

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): 21470032 (EXP. DATE): 4/23 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
4620.6 / 4490	17.37	☐ WITHIN RANGE	
4475.1 / 4490	17.42	☒ WITHIN RANGE	0847
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CALIBRATION READING (mg/L)	CAL. RANGE	TIME
RC Temp: ~~16.65~~ 15.23 °C Baro: 766.67 mmHg Calc: 10.1 mg/L Act: 10.04 mg/L	☒ WITHIN RANGE	0903
	☐ WITHIN RANGE	
	☐ WITHIN RANGE	
	☐ WITHIN RANGE	

COMMENTS

☒ AUTOCAL SOLUTION (LOT #): 21470032 (EXP. DATE): 4/23

☐ STANDARD SOLUTION (S)

LIST LOT NUMBERS AND EXPIRATION DATES UNDER CALIBRATION CHECK

CALIBRATED PARAMETERS		CALIBRATION RANGES (1)	
☒	pH	pH:	+/- 0.2 S.U.
☒	COND	COND:	+/- 1% OF CAL. STANDARD
☐	ORP	ORP:	+/- 25 mV
☐	D.O.	D.O.:	VARIES
☐	TURB	TURB:	+/- 5% OF CAL. STANDARD
☐	_____	(1) CALIBRATION RANGES ARE SPECIFIC TO THE MODEL OF THE WATER QUALITY METER	
☐	_____		

PROBLEMS ENCOUNTERED	CORRECTIVE ACTIONS
n/a	n/a

SIGNED _____ 3/15/23 DATE

CHECKED BY _____ 3/21/23 DATE

REVISED 06/2011

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

March 29, 2023

Kelly Hicks
Dominion Energy Services, Inc.
120 Tredegar Street
Richmond, Virginia 23219

Re: CCR Groundwater Monitoring - Level 1 Package
Work Order: 614780

Dear Kelly Hicks:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on March 16, 2023. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1648.

Sincerely,

Meredith Boddiford

Meredith Boddiford
Project Manager

Purchase Order: 50149867
Enclosures

Table of Contents

Case Narrative

Receipt Narrative
for
Dominion Energy (50149867)
SDG: 614780

March 29, 2023

Laboratory Identification:

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

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on March 16, 2023 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

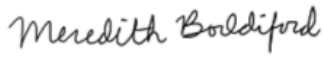
Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
614780001	MW-LF-01-2023Q1
614780002	MW-LF-06-2023Q1
614780003	MW-LF-07-2023Q1
614780004	MW-LF-08-2023Q1
614780005	MW-LF-10A-2023Q1
614780006	MW-LF-11-2023Q1
614780007	DU-WAT-CCR-LF-23101
614780008	FBLK-WAT-CCR-LF-23101
614780009	MW-LF-22-2023Q1
614780010	AS-LF-01-2023Q1
614780011	AS-LF-02-2023Q1
614780012	AS-LF-03-2023Q1
614780013	MW-BG-73-2023Q1

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry and Metals.



Meredith Boddiford
Project Manager

Chain of Custody and Supporting Documentation

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GEL Laboratories LLC 614780

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Chain of Custody and Analytical Request

GEL Work Order Number: 228219 **GEL Project Manager: Meredith Boddiford**

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Dominion Energy Phone # 803-258-1528

Project/Site Name: Wateree Station Class 3 Landfill CCR 2023Q1 Fax #

Address: Wateree, South Carolina

Collected By: J. Bradley, C. Serowik Send Results To: AReed@envstd.com

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID (* For composites - indicate start and stop date/time)	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive (If yes, please supply isotopic info.)	Should this sample be considered: (7) Known or possible Hazards	Total number of containers	TDS - SM2540C	Cl, Fl, SO4 - 300.0	NI Total B, and Ca 6020B	<-- Preservative Type (6)	Comments
MW-LF-01-2023Q1	3-15-23	1030	N	N	GW	N		3	X	X	X		
MW-LF-06-2023Q1	3-15-23	1035	N	N	GW	N		3	X	X	X		See attached work
MW-LF-07-2023Q1 ms/msd	3-15-23	1339	N	N	GW	N		6	X	X	X		order for details
MW-LF-08-2023Q1	3-15-23	1340	N	N	GW	N		3	X	X	X		
MW-LF-10A-2023Q1	3-15-23	1208	N	N	GW	N		3	X	X	X		
MW-LF-11-2023Q1	3-15-23	1155	N	N	GW	N		3	X	X	X		
DU-WAT-CCR-LF-23101	3-15-23	—	FD	N	GW	N		3	X	X	X		
FBLK-WAT-CCR-LF-23101	3-15-23	1225	FB	N	AQ	N		3	X	X	X		
MW-LF-22-2023Q1	3-14-23	1650	N	N	GW	N		3	X	X	X		

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1	[signature]	3/16/2023	1430	[signature]	3/16/23	1430
2						
3						

TAT Requested: Normal: X Rush: ____ Specify: ____

Fax Results: [ ] Yes [X] No

Select Deliverable: [ ] C of A [ ] QC Summary [X] level 1 [ ] Level 2 [ ] Level 3 [ ] Level 4

Additional Remarks:

For Lab Receiving Use Only: *Custody Seal Intact?* [ ] *Yes* [ ] *No* ***Cooler Temp:*** ____ °C

> ***For sample shipping and delivery details, see Sample Receipt & Review form (SRR.)***

Sample Collection Time Zone : [X] Eastern [ ] Pacific [ ] Central [ ] Mountain [ ] Other:

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** = Composite

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, **ML**=Misc Liquid, **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**).

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

7.) **KNOWN OR POSSIBLE HAZARDS**

RCRA Metals
As = Arsenic **Hg**= Mercury
Ba = Barium **Se**= Selenium
Cd = Cadmium **Ag**= Silver
Cr = Chromium **MR**= Misc. RCRA metals
Pb = Lead

Characteristic Hazards
FL = Flammable/Ignitable
CO = Corrosive
RE = Reactive

TSCA Regulated
PCB = Polychlorinated biphenyls

Listed Waste
LW= Listed Waste
(F,K,P and U-listed wastes.)
Waste code(s):

Other
OT= Other / Unknown
(i.e.: High/low pH, asbestos, beryllium, irritants, other misc. health hazards, etc.)
Description:

Please provide any additional details below regarding handling and/or disposal concerns. *(i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)*

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GEL Laboratories LLC

gel.com | Chemistry | Radiochemistry | Radiobioassay | Specialty Analytics

Chain of Custody and Analytical Request

GEL Work Order Number: 228219 ***GEL Project Manager: Meredith Boddiford***

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Dominion Energy Phone # 803-258-1528

Project/Site Name: Wateree Station Class 3 Landfill CCR 2023Q1 Fax #

Address: Wateree, South Carolina

Collected By: Send Results To: AReed@envstd.com

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID * For composites - indicate start and stop date/time	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive (If yes, please supply isotopic info.)	Should this sample be considered: (7) Known or possible Hazards	Total number of containers	TDS - SM2540C	Cl, Fl, SO4 - 300.0	NI Total B, and Ca 6020B	<-- Preservative Type (6)	Comments
~~AWLF-01-2023Q1~~	3-15-23	1140	N	N	GW	N		3	X	X	X		
AWLF-02-2023Q1	3-15-23	1312	N	N	GW	N		3	X	X	X		See attached work
AWLF-03-2023Q1	3-15-23	1028	N	N	GW	N		3	X	X	X		order for details
MW-BG-73-2023Q1	3-15-23	1420	N	N	GW	N		3	X	X	X		
~~FBLK-WAT-CCR-LF-23102~~			~~FB~~	~~N~~	~~AQ~~	N							

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1	[signature]	3/16/2023	1430	[signature]	3/16/23	1430
2						
3						

> ***For sample shipping and delivery details, see Sample Receipt & Review form (SRR.)***

TAT Requested: Normal: X Rush: ____ Specify: ____

Fax Results: [ ] Yes [X] No

Select Deliverable: [ ] C of A [ ] QC Summary [X] level 1 [ ] Level 2 [ ] Level 3 [ ] Level 4

Additional Remarks:

For Lab Receiving Use Only: *Custody Seal Intact?* [ ] *Yes* [ ] *No* ***Cooler Temp:*** ____ °C

Sample Collection Time Zone: [X] Eastern [ ] Pacific [ ] Central [ ] Mountain [ ] Other:

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** = Composite

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, **ML**=Misc Liquid, **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**).

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

7.) **KNOWN OR POSSIBLE HAZARDS**

RCRA Metals
As = Arsenic **Hg**= Mercury
Ba = Barium **Se**= Selenium
Cd = Cadmium **Ag**= Silver
Cr = Chromium **MR**= Misc. RCRA metals
Pb = Lead

Characteristic Hazards
FL = Flammable/Ignitable
CO = Corrosive
RE = Reactive

TSCA Regulated
PCB = Polychlorinated biphenyls

Listed Waste
LW= Listed Waste
(F,K,P and U-listed wastes.)
Waste code(s):

Other
OT= Other / Unknown
(i.e.: High/low pH, asbestos, beryllium, irritants, other misc. health hazards, etc.)
Description:

Please provide any additional details below regarding handling and/or disposal concerns. *(i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)*

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: DMNN	SDG/AR/COC/Work Order: 614780
Received By: AnnaJohnson	Date Received: 03/16/23
Enter one tracking number per line below. Enter courier if applicable and no tracking available.	IR temperature gun # IR1-23 Daily Calibration performed? Y/N
	Uncorrected temperature readings are to the 0.1 degree with final recorded tepmeratures rounded to the 0.5 degree. Provide individual container details when a cooler requiring 0 </=6oC is identified as out of specification.
LFCCR cooler 1	Uncorrected Temp: 1.9°C IR Correction Factor: +/- N/A Final Recorded Temp: 1.9°C Within 0.0-6.0C? Y/N
landfill CCR COOler 2	Uncorrected Temp: 0.7 IR Correction Factor: +/- N/A Final Recorded Temp: 0.7°C Within 0.0-6.0C? Y/N
landfill CCR Cooler 3	Uncorrected Temp: 1.1°C IR Correction Factor: +/- N/A Final Recorded Temp: 1.1°C Within 0.0-6.0C? Y/N
COOler 4	Uncorrected Temp: 0.5°C IR Correction Factor: +/- N/A Final Recorded Temp: 0.5 Within 0.0-6.0C? Y/N
AP CCR COOler 5	Uncorrected Temp: 2.1°C IR Correction Factor: +/- N/A Final Recorded Temp: 2.1°C Within 0.0-6.0C? Y/N
COOler 6	Uncorrected Temp: 2.4°C IR Correction Factor: +/- N/A Final Recorded Temp: 2.4°C Within 0.0-6.0C? Y/N

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A) Shipped as a DOT Hazardous?		/	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		/	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		/	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): _____CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
D) Did the client designate samples are hazardous?		/	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		/	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	/			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	/			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Sample containers intact and sealed?	/			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
4	Samples requiring cold preservation were unpacked directly into cold storage?	/			Uncorrected Temp: Correction Factor: +/- Final Recorded Temp: Within 0.0-6.0C? Y/N NA Response = Samples are for radiochemistry testing only
5	Samples requiring chemical preservation at proper pH?	/			Sample ID's and Containers Affected: If Preservative added, Lot#:
6	Do any samples require Volatile Analysis?			/	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
7	Samples received within holding time?	/			ID's and tests affected:
8	Sample ID's on COC match ID's on bottles?	/			ID's and containers affected:
9	Date & time on COC match date & time on bottles?	/			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
10	Number of containers received match number indicated on COC?			/	Circle Applicable: No container count on COC Other (describe) *
11	Are sample containers identifiable as GEL provided by use of GEL labels?	/			
12	COC form is properly signed in relinquished/received sections?	/			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

*(614767) MW-FGD-01-2023Q1 incorrect container count. (Anions/Ra226/8 bottles recieved NOT on COC.

PM (or PMA) review: Initials MA Date 3/20/23 Page 1 of 2

GL-CHL-SR-001A Rev 1

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW CONTINUATION FORM

Client: DMNN Received By: Anna Johnson Date Received: 3/16/23 SDG/AR/COC/Work Order: 614780

Additional Cooler/Temperature information if needed:					
Enter one tracking number per line below. Enter courier if applicable and no tracking available.	Uncorrected temperature readings are to the 0.1 degree with final recorded tepmeratures rounded to the 0.5 degree. Provide individual container details when a cooler requiring 0 </=6.0C is identified as out of specification.				
AP CCB cooler 7	Uncorrected Temp: 0.5	IR Correction Factor: +/- N/A	Final Recorded Temp: 0.5	Within 0.0-6.0C? Y/N	0
	Uncorrected Temp:	IR Correction Factor: +/-	Final Recorded Temp:	Within 0.0-6.0C? Y/N	
	Uncorrected Temp:	IR Correction Factor: +/-	Final Recorded Temp:	Within 0.0-6.0C? Y/N	
	Uncorrected Temp:	IR Correction Factor: +/-	Final Recorded Temp:	Within 0.0-6.0C? Y/N	
	Uncorrected Temp:	IR Correction Factor: +/-	Final Recorded Temp:	Within 0.0-6.0C? Y/N	
	Uncorrected Temp:	IR Correction Factor: +/-	Final Recorded Temp:	Within 0.0-6.0C? Y/N	
	Uncorrected Temp:	IR Correction Factor: +/-	Final Recorded Temp:	Within 0.0-6.0C? Y/N	
	Uncorrected Temp:	IR Correction Factor: +/-	Final Recorded Temp:	Within 0.0-6.0C? Y/N	
	Uncorrected Temp:	IR Correction Factor: +/-	Final Recorded Temp:	Within 0.0-6.0C? Y/N	

Additional Comments:

PM (or PMA) review: Initials AD Date 3/20/23 Page 2 of 2

Laboratory Certifications

List of current GEL Certifications as of 29 March 2023

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2019020
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122023-4
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2022-160
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-22-20
Utah NELAP	SC000122022-37
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
Dominion Energy
SDG #: 614780

Product: **Determination of Metals by ICP-MS**
Analytical Method: EPA 200.8 SC_NPDES
Analytical Procedure: GL-MA-E-014 REV# 35
Analytical Batch: 2400593

Preparation Method: EPA 200.2
Preparation Procedure: GL-MA-E-016 REV# 18
Preparation Batch: 2400592

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

GEL Sample ID#	Client Sample Identification
614780001	MW-LF-01-2023Q1
614780002	MW-LF-06-2023Q1
614780003	MW-LF-07-2023Q1
614780004	MW-LF-08-2023Q1
614780005	MW-LF-10A-2023Q1
614780006	MW-LF-11-2023Q1
614780007	DU-WAT-CCR-LF-23101
614780008	FBLK-WAT-CCR-LF-23101
614780009	MW-LF-22-2023Q1
614780010	AS-LF-01-2023Q1
614780011	AS-LF-02-2023Q1
614780012	AS-LF-03-2023Q1
614780013	MW-BG-73-2023Q1
1205349743	Method Blank (MB)**ICP-MS**
1205349744	Laboratory Control Sample (LCS)
1205349747	614780003(MW-LF-07-2023Q1L) Serial Dilution (SD)
1205349750	614780013(MW-BG-73-2023Q1L) Serial Dilution (SD)
1205349745	614780003(MW-LF-07-2023Q1D) Sample Duplicate (DUP)
1205349748	614780013(MW-BG-73-2023Q1D) Sample Duplicate (DUP)
1205349746	614780003(MW-LF-07-2023Q1S) Matrix Spike (MS)
1205349749	614780013(MW-BG-73-2023Q1S) Matrix Spike (MS)

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

Data Summary:

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

Calibration Information

ICSA/ICSAB Statement

For the ICP-MS analysis, the ICSA solution contains analyte concentrations which are verified trace impurities indigenous to the purchased standard.

Miscellaneous Information

Additional Comments
All method-driven specifications are followed for these analyses except where client-specific SOW requirements are required to be met.

Certification Statement

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

GEL LABORATORIES LLC

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

Qualifier Definition Report
for

DMNN001 Dominion Energy (50149867)

Client SDG: 614780 GEL Work Order: 614780

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

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

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

Signature:  **Name: Edmund Frampton**

Date: 22 MAR 2023 **Title: Group Leader**

Sample Data Summary

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614780 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614780001 **BASIS:** As Received **DATE COLLECTED** 15-MAR-23

CLIENT ID: MW-LF-01-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 16-MAR-23

MATRIX: GW **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	8.89	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/21/23 19:53	230321-1	2400593
7440-70-2	Calcium	166	ug/L		30.0	100	100	1	MS	PRB	03/21/23 19:53	230321-1	2400593

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2400593	2400592	EPA 200.2	50	mL	50	mL	03/20/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614780 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614780002 **BASIS:** As Received **DATE COLLECTED** 15-MAR-23

CLIENT ID: MW-LF-06-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 16-MAR-23

MATRIX: GW **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	5.56	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/21/23 19:56	230321-1	2400593
7440-70-2	Calcium	868	ug/L		30.0	100	100	1	MS	PRB	03/21/23 19:56	230321-1	2400593

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2400593	2400592	EPA 200.2	50	mL	50	mL	03/20/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614780 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614780003 **BASIS:** As Received **DATE COLLECTED** 15-MAR-23

CLIENT ID: MW-LF-07-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 16-MAR-23

MATRIX: GW **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	6.23	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/21/23 19:59	230321-1	2400593
7440-70-2	Calcium	999	ug/L		30.0	100	100	1	MS	PRB	03/21/23 19:59	230321-1	2400593

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2400593	2400592	EPA 200.2	50	mL	50	mL	03/20/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614780 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614780004 **BASIS:** As Received **DATE COLLECTED** 15-MAR-23

CLIENT ID: MW-LF-08-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 16-MAR-23

MATRIX: GW **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	6.86	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/21/23 20:23	230321-1	2400593
7440-70-2	Calcium	835	ug/L		30.0	100	100	1	MS	PRB	03/21/23 20:23	230321-1	2400593

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2400593	2400592	EPA 200.2	50	mL	50	mL	03/20/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614780 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614780005 **BASIS:** As Received **DATE COLLECTED** 15-MAR-23

CLIENT ID: MW-LF-10A-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 16-MAR-23

MATRIX: GW **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	5.12	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/21/23 20:26	230321-1	2400593
7440-70-2	Calcium	1080	ug/L		30.0	100	100	1	MS	PRB	03/21/23 20:26	230321-1	2400593

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2400593	2400592	EPA 200.2	50	mL	50	mL	03/20/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614780 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614780006 **BASIS:** As Received **DATE COLLECTED** 15-MAR-23

CLIENT ID: MW-LF-11-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 16-MAR-23

MATRIX: GW **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	5.90	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/21/23 20:30	230321-1	2400593
7440-70-2	Calcium	348	ug/L		30.0	100	100	1	MS	PRB	03/21/23 20:30	230321-1	2400593

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2400593	2400592	EPA 200.2	50	mL	50	mL	03/20/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614780 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614780007 **BASIS:** As Received **DATE COLLECTED** 15-MAR-23

CLIENT ID: DU-WAT-CCR-LF-23101 **LEVEL:** Low **DATE RECEIVED:** 16-MAR-23

MATRIX: GW **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	5.66	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/21/23 20:33	230321-1	2400593
7440-70-2	Calcium	982	ug/L		30.0	100	100	1	MS	PRB	03/21/23 20:33	230321-1	2400593

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2400593	2400592	EPA 200.2	50	mL	50	mL	03/20/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614780 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614780008 **BASIS:** As Received **DATE COLLECTED** 15-MAR-23

CLIENT ID: FBLK-WAT-CCR-LF-2310 **LEVEL:** Low **DATE RECEIVED:** 16-MAR-23

MATRIX: AQ **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	4.00	ug/L	U	4.00	15.0	15.0	1	MS	PRB	03/21/23 20:36	230321-1	2400593
7440-70-2	Calcium	30.0	ug/L	U	30.0	100	100	1	MS	PRB	03/21/23 20:36	230321-1	2400593

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2400593	2400592	EPA 200.2	50	mL	50	mL	03/20/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614780 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614780009 **BASIS:** As Received **DATE COLLECTED** 14-MAR-23

CLIENT ID: MW-LF-22-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 16-MAR-23

MATRIX: GW **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	9.49	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/21/23 20:40	230321-1	2400593
7440-70-2	Calcium	2130	ug/L		30.0	100	100	1	MS	PRB	03/21/23 20:40	230321-1	2400593

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2400593	2400592	EPA 200.2	50	mL	50	mL	03/20/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614780 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614780010 **BASIS:** As Received **DATE COLLECTED** 15-MAR-23

CLIENT ID: AS-LF-01-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 16-MAR-23

MATRIX: GW **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	6.22	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/21/23 20:43	230321-1	2400593
7440-70-2	Calcium	904	ug/L		30.0	100	100	1	MS	PRB	03/21/23 20:43	230321-1	2400593

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2400593	2400592	EPA 200.2	50	mL	50	mL	03/20/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614780 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614780011 **BASIS:** As Received **DATE COLLECTED** 15-MAR-23

CLIENT ID: AS-LF-02-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 16-MAR-23

MATRIX: GW **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	6.66	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/21/23 20:46	230321-1	2400593
7440-70-2	Calcium	2690	ug/L		30.0	100	100	1	MS	PRB	03/21/23 20:46	230321-1	2400593

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2400593	2400592	EPA 200.2	50	mL	50	mL	03/20/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614780 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614780012 **BASIS:** As Received **DATE COLLECTED** 15-MAR-23

CLIENT ID: AS-LF-03-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 16-MAR-23

MATRIX: GW **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	5.24	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/21/23 20:50	230321-1	2400593
7440-70-2	Calcium	760	ug/L		30.0	100	100	1	MS	PRB	03/21/23 20:50	230321-1	2400593

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2400593	2400592	EPA 200.2	50	mL	50	mL	03/20/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614780 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614780013 **BASIS:** As Received **DATE COLLECTED** 15-MAR-23

CLIENT ID: MW-BG-73-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 16-MAR-23

MATRIX: GW **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	6.60	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/21/23 21:00	230321-1	2400593
7440-70-2	Calcium	302	ug/L		30.0	100	100	1	MS	PRB	03/21/23 21:00	230321-1	2400593

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2400593	2400592	EPA 200.2	50	mL	50	mL	03/20/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

Quality Control Summary

METALS
-2a-
Initial and Continuing Calibration Verification

SDG No: 614780

Contract: DMNN00101 **Lab Code:** GEL

Instrument ID: ICPMS15

Sample ID	*Analyte*	*Result*	*Units*	*True Value*	*Units*	*% Recovery*	*Acceptance Window (%R)*	*M**	*Analysis Date/Time*	*Run Number*
ICV01										
	Boron	103	ug/L	100	ug/L	102.5	90.0 - 110.0	MS	21-MAR-23 19:12	230321-1
	Calcium	5140	ug/L	5000	ug/L	102.8	90.0 - 110.0	MS	21-MAR-23 19:12	230321-1
CCV01										
	Boron	100	ug/L	100	ug/L	100.3	90.0 - 110.0	MS	21-MAR-23 19:29	230321-1
	Calcium	5110	ug/L	5000	ug/L	102.3	90.0 - 110.0	MS	21-MAR-23 19:29	230321-1
CCV02										
	Boron	95.4	ug/L	100	ug/L	95.4	90.0 - 110.0	MS	21-MAR-23 19:39	230321-1
	Calcium	5120	ug/L	5000	ug/L	102.4	90.0 - 110.0	MS	21-MAR-23 19:39	230321-1
CCV03										
	Boron	94.5	ug/L	100	ug/L	94.5	90.0 - 110.0	MS	21-MAR-23 20:16	230321-1
	Calcium	5190	ug/L	5000	ug/L	103.8	90.0 - 110.0	MS	21-MAR-23 20:16	230321-1
CCV04										
	Boron	96.6	ug/L	100	ug/L	96.6	90.0 - 110.0	MS	21-MAR-23 20:53	230321-1
	Calcium	5210	ug/L	5000	ug/L	104.2	90.0 - 110.0	MS	21-MAR-23 20:53	230321-1
CCV05										
	Boron	98.7	ug/L	100	ug/L	98.7	90.0 - 110.0	MS	21-MAR-23 21:27	230321-1
	Calcium	5070	ug/L	5000	ug/L	101.5	90.0 - 110.0	MS	21-MAR-23 21:27	230321-1

***Analytical Methods:**

MS EPA 200.8 SC_NPDES

METALS
-2b-
CRDL Standard for ICP & ICPMS

SDG No: 614780

Contract: DMNN00101 **Lab Code:** GEL

Instrument ID: ICPMS15

Sample ID	*Analyte*	*Result*	*Units*	*True Value*	*Units*	*% Recovery*	*Advisory Limits (%R)*	*M**	*Analysis Date/Time*	*Run Number*
CRDL01										
	Boron	14.7	ug/L	15	ug/L	98.3	70.0 - 130.0	MS	21-MAR-23 19:19	230321-1
	Calcium	232	ug/L	200	ug/L	115.9	70.0 - 130.0	MS	21-MAR-23 19:19	230321-1
CRDL02										
	Boron	15.3	ug/L	15	ug/L	102.2	70.0 - 130.0	MS	21-MAR-23 21:17	230321-1
	Calcium	257	ug/L	200	ug/L	128.5	70.0 - 130.0	MS	21-MAR-23 21:17	230321-1

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

Metals
-3a-
Initial and Continuing Calibration Blank Summary

SDG No.: 614780

Contract: DMNN00101

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
ICB01										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	21-MAR-23 19:16	230321-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	21-MAR-23 19:16	230321-1
CCB01										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	21-MAR-23 19:33	230321-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	21-MAR-23 19:33	230321-1
CCB02										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	21-MAR-23 19:43	230321-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	21-MAR-23 19:43	230321-1
CCB03										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	21-MAR-23 20:20	230321-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	21-MAR-23 20:20	230321-1
CCB04										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	21-MAR-23 20:57	230321-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	21-MAR-23 20:57	230321-1
CCB05										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	21-MAR-23 21:30	230321-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	21-MAR-23 21:30	230321-1

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-3b-
PREPARATION BLANK SUMMARY

SDG NO. 614780
Contract: DMNN00101
Matrix: GW

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1205349743								
	Calcium	30.0	ug/L	+/-50	U	MS	30.0	100
	Boron	4.00	ug/L	+/-7.5	U	MS	4.00	15.0

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-4-
Interference Check Sample

SDG No: 614780

Contract: DMNN00101 **Lab Code:** GEL

Instrument: ICPMS15

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	Analysis Date/Time	Run Number
ICSA01									
	Boron	3.45	ug/L					21-MAR-23 19:22	230321-1
	Calcium	97600	ug/L	100000	ug/L	97.6	80.0 - 120.0	21-MAR-23 19:22	230321-1
ICSAB01									
	Boron	20.8	ug/L	22.06	ug/L	94.4	80.0 - 120.0	21-MAR-23 19:26	230321-1
	Calcium	96400	ug/L	100000	ug/L	96.4	80.0 - 120.0	21-MAR-23 19:26	230321-1
ICSA02									
	Boron	2.76	ug/L					21-MAR-23 21:20	230321-1
	Calcium	97200	ug/L	100000	ug/L	97.2	80.0 - 120.0	21-MAR-23 21:20	230321-1
ICSAB02									
	Boron	19.7	ug/L	22.06	ug/L	89.4	80.0 - 120.0	21-MAR-23 21:24	230321-1
	Calcium	97500	ug/L	100000	ug/L	97.5	80.0 - 120.0	21-MAR-23 21:24	230321-1

METALS
-5a-

Matrix Spike Summary

SDG NO. 614780 **Client ID:** MW-LF-07-2023Q1S

Contract: DMNN00101 **Level:** Low

Matrix: GROUND WATER **% Solids:**

Sample ID: 614780003 **Spike ID:** 1205349746

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Boron	ug/L	75-125	100		6.23	B	100	93.9		MS
Calcium	ug/L	75-125	3060		999		2000	103		MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-5a-

Matrix Spike Summary

SDG NO. 614780 **Client ID:** MW-BG-73-2023Q1S

Contract: DMNN00101 **Level:** Low

Matrix: GROUND WATER **% Solids:**

Sample ID: 614780013 **Spike ID:** 1205349749

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Boron	ug/L	75-125	101		6.60	B	100	94.9		MS
Calcium	ug/L	75-125	2510		302		2000	110		MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

Metals
-6-
Duplicate Sample Summary

SDG No.: 614780 **Lab Code:** GEL

Contract: DMNN00101 **Client ID:** MW-LF-07-2023Q1D

Matrix: GROUND WATER **Level:** Low

Sample ID: 614780003 **Duplicate ID:** 1205349745 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Boron	ug/L	+/-30	6.23	B	6.34	B	1.7		MS
Calcium	ug/L	+/-20%	999		918		8.44		MS

***Analytical Methods:**
MS EPA 200.8 SC_NPDES

Metals
-6-
Duplicate Sample Summary

SDG No.: 614780 **Lab Code:** GEL

Contract: DMNN00101 **Client ID:** MW-BG-73-2023Q1D

Matrix: GROUND WATER **Level:** Low

Sample ID: 614780013 **Duplicate ID:** 1205349748 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Boron	ug/L	+/-30	6.60	B	5.46	B	18.8		MS
Calcium	ug/L	+/-200	302		286		5.66		MS

***Analytical Methods:**
MS EPA 200.8 SC_NPDES

METALS
-7-
Laboratory Control Sample Summary

SDG NO. 614780

Contract: DMNN00101

Aqueous LCS Source: Enviromental Express **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1205349744								
	Boron	ug/L	100	93.8		93.8	85-115	MS
	Calcium	ug/L	2000	2110		105	85-115	MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-9-
Serial Dilution Sample Summary

SDG NO. 614780 **Client ID:** MW-LF-07-2023Q1L

Contract: DMNN00101

Matrix: LIQUID **Level:** Low

Sample ID: 614780003 **Serial Dilution ID:** 1205349747

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Boron	6.23	B	20	U	109.631			MS
Calcium	999		984		1.523			MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-9-
Serial Dilution Sample Summary

SDG NO. 614780 **Client ID:** MW-BG-73-2023Q1L

Contract: DMNN00101

Matrix: LIQUID **Level:** Low

Sample ID: 614780013 **Serial Dilution ID:** 1205349750

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Boron	6.6	B	20	U	90.675			MS
Calcium	302		310	B	2.599			MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-13-
SAMPLE PREPARATION SUMMARY

SDG No: 614780 **Method Type:** MS

Contract: DMNN00101 **Lab Code:** GEL

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size	Final Sample Volume	Percent Solids
Batch Number	2400592						
1205349743	MB for batch 2400592	MB	G	20-MAR-23	50mL	50mL	
1205349744	LCS for batch 2400592	LCS	G	20-MAR-23	50mL	50mL	
1205349746	MW-LF-07-2023Q1S	MS	G	20-MAR-23	50mL	50mL	
1205349749	MW-BG-73-2023Q1S	MS	G	20-MAR-23	50mL	50mL	
1205349745	MW-LF-07-2023Q1D	DUP	G	20-MAR-23	50mL	50mL	
1205349748	MW-BG-73-2023Q1D	DUP	G	20-MAR-23	50mL	50mL	
614780001	MW-LF-01-2023Q1	SAMPLE	G	20-MAR-23	50mL	50mL	
614780002	MW-LF-06-2023Q1	SAMPLE	G	20-MAR-23	50mL	50mL	
614780003	MW-LF-07-2023Q1	SAMPLE	G	20-MAR-23	50mL	50mL	
614780004	MW-LF-08-2023Q1	SAMPLE	G	20-MAR-23	50mL	50mL	
614780005	MW-LF-10A-2023Q1	SAMPLE	G	20-MAR-23	50mL	50mL	
614780006	MW-LF-11-2023Q1	SAMPLE	G	20-MAR-23	50mL	50mL	
614780007	DU-WAT-CCR-LF-23101	SAMPLE	G	20-MAR-23	50mL	50mL	
614780008	FBLK-WAT-CCR-LF-23101	SAMPLE	G	20-MAR-23	50mL	50mL	
614780009	MW-LF-22-2023Q1	SAMPLE	G	20-MAR-23	50mL	50mL	
614780010	AS-LF-01-2023Q1	SAMPLE	G	20-MAR-23	50mL	50mL	
614780011	AS-LF-02-2023Q1	SAMPLE	G	20-MAR-23	50mL	50mL	
614780012	AS-LF-03-2023Q1	SAMPLE	G	20-MAR-23	50mL	50mL	
614780013	MW-BG-73-2023Q1	SAMPLE	G	20-MAR-23	50mL	50mL	

EPA

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
Dominion Energy
SDG #: 614780

Product: **Ion Chromatography**
Analytical Method: EPA 300.0
Analytical Procedure: GL-GC-E-086 REV# 30
Analytical Batch: 2401599

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

GEL Sample ID#	Client Sample Identification
614780001	MW-LF-01-2023Q1
614780002	MW-LF-06-2023Q1
614780003	MW-LF-07-2023Q1
614780004	MW-LF-08-2023Q1
614780005	MW-LF-10A-2023Q1
614780006	MW-LF-11-2023Q1
614780007	DU-WAT-CCR-LF-23101
614780008	FBLK-WAT-CCR-LF-23101
614780009	MW-LF-22-2023Q1
614780010	AS-LF-01-2023Q1
614780011	AS-LF-02-2023Q1
614780012	AS-LF-03-2023Q1
614780013	MW-BG-73-2023Q1
1205351909	Method Blank (MB)
1205351910	Laboratory Control Sample (LCS)
1205351911	614780003(MW-LF-07-2023Q1) Sample Duplicate (DUP)
1205351912	614780003(MW-LF-07-2023Q1) Post Spike (PS)
1205351913	614780013(MW-BG-73-2023Q1) Sample Duplicate (DUP)
1205351914	614780013(MW-BG-73-2023Q1) 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.

Quality Control (QC) Information

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
Chloride	1205351912 (MW-LF-07-2023Q1PS)	118* (90%-110%)

Technical Information

Sample Dilutions
The following sample 614780009 (MW-LF-22-2023Q1) was diluted because target analyte concentrations exceeded the calibration range. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	**614780**
	009
Chloride	2X

Miscellaneous Information

Additional Comments
All method-driven specifications are followed for these analyses except where client-specific SOW requirements are required to be met.

Product: **Solids, Total Dissolved**
Analytical Method: SM 2540C
Analytical Procedure: GL-GC-E-001 REV# 20
Analytical Batch: 2400766

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

GEL Sample ID#	Client Sample Identification
614780001	MW-LF-01-2023Q1
614780002	MW-LF-06-2023Q1
614780003	MW-LF-07-2023Q1
614780004	MW-LF-08-2023Q1
614780005	MW-LF-10A-2023Q1
614780006	MW-LF-11-2023Q1
614780007	DU-WAT-CCR-LF-23101
614780008	FBLK-WAT-CCR-LF-23101
614780009	MW-LF-22-2023Q1
614780010	AS-LF-01-2023Q1
614780011	AS-LF-02-2023Q1
614780012	AS-LF-03-2023Q1
614780013	MW-BG-73-2023Q1
1205350108	Method Blank (MB)
1205350109	Laboratory Control Sample (LCS)
1205350110	614780003(MW-LF-07-2023Q1) Sample Duplicate (DUP)
1205350111	614780013(MW-BG-73-2023Q1) Sample Duplicate (DUP)

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

Duplicate Relative Percent Difference (RPD) Statement
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample:

Analyte	Sample	Value
Total Dissolved Solids	1205350110 (MW-LF-07-2023Q1DUP)	abs(23 - 8)* (+/-10 mg/L)

Miscellaneous Information

Additional Comments
All method-driven specifications are followed for these analyses except where client-specific SOW requirements are required to be met.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the

requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

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

Qualifier Definition Report
for

DMNN001 Dominion Energy (50149867)

Client SDG: 614780 GEL Work Order: 614780

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

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

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

Signature:  **Name: Aubrey Kingsbury**

Date: 29 MAR 2023 **Title: Team Leader**

Sample Data Summary

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

Certificate of Analysis

Report Date: March 29, 2023

Company : Dominion Energy Services, Inc.
Address : 120 Tredegar Street

Richmond, Virginia 23219
Contact: Kelly Hicks
Project: CCR Groundwater Monitoring - Level 1 Package

Client Sample ID:	MW-LF-01-2023Q1	Project:	DMNN00101
Sample ID:	614780001	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	15-MAR-23 10:30		
Receive Date:	16-MAR-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		8.22	0.0670	0.200	mg/L		1	JLD1	03/21/23	1204	2401599	1
Fluoride	J	0.0384	0.0330	0.100	mg/L		1					
Sulfate	J	0.362	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		16.0	2.38	10.0	mg/L			CH6	03/20/23	1316	2400766	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: March 29, 2023

Company : Dominion Energy Services, Inc.
Address : 120 Tredegar Street

Richmond, Virginia 23219
Contact: Kelly Hicks
Project: CCR Groundwater Monitoring - Level 1 Package

Client Sample ID:	MW-LF-06-2023Q1	Project:	DMNN00101
Sample ID:	614780002	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	15-MAR-23 10:35		
Receive Date:	16-MAR-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		7.00	0.0670	0.200	mg/L		1	JLD1	03/21/23	1236	2401599	1
Fluoride	U	ND	0.0330	0.100	mg/L		1					
Sulfate		0.408	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		19.0	2.38	10.0	mg/L			CH6	03/20/23	1316	2400766	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: March 29, 2023

Company : Dominion Energy Services, Inc.
Address : 120 Tredegar Street

Richmond, Virginia 23219
Contact: Kelly Hicks
Project: CCR Groundwater Monitoring - Level 1 Package

Client Sample ID:	MW-LF-07-2023Q1	Project:	DMNN00101
Sample ID:	614780003	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	15-MAR-23 13:39		
Receive Date:	16-MAR-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		9.74	0.0670	0.200	mg/L		1	JLD1	03/21/23	1307	2401599	1
Fluoride	J	0.0386	0.0330	0.100	mg/L		1					
Sulfate		2.61	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids	J	8.00	2.38	10.0	mg/L			CH6	03/20/23	1316	2400766	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: March 29, 2023

Company : Dominion Energy Services, Inc.
Address : 120 Tredegar Street

Richmond, Virginia 23219
Contact: Kelly Hicks
Project: CCR Groundwater Monitoring - Level 1 Package

Client Sample ID:	MW-LF-08-2023Q1	Project:	DMNN00101
Sample ID:	614780004	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	15-MAR-23 13:40		
Receive Date:	16-MAR-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		5.36	0.0670	0.200	mg/L		1	JLD1	03/21/23	1443	2401599	1
Fluoride	U	ND	0.0330	0.100	mg/L		1					
Sulfate	J	0.334	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		13.0	2.38	10.0	mg/L			CH6	03/20/23	1316	2400766	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: March 29, 2023

Company : Dominion Energy Services, Inc.
Address : 120 Tredegar Street

Richmond, Virginia 23219
Contact: Kelly Hicks
Project: CCR Groundwater Monitoring - Level 1 Package

Client Sample ID:	MW-LF-10A-2023Q1	Project:	DMNN00101
Sample ID:	614780005	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	15-MAR-23 12:08		
Receive Date:	16-MAR-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		4.98	0.0670	0.200	mg/L		1	JLD1	03/21/23	1515	2401599	1
Fluoride	J	0.0379	0.0330	0.100	mg/L		1					
Sulfate		2.60	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids	J	8.00	2.38	10.0	mg/L			CH6	03/20/23	1316	2400766	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: March 29, 2023

Company : Dominion Energy Services, Inc.
Address : 120 Tredegar Street

Richmond, Virginia 23219
Contact: Kelly Hicks
Project: CCR Groundwater Monitoring - Level 1 Package

Client Sample ID:	MW-LF-11-2023Q1	Project:	DMNN00101
Sample ID:	614780006	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	15-MAR-23 11:55		
Receive Date:	16-MAR-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		9.16	0.0670	0.200	mg/L		1	JLD1	03/21/23	1547	2401599	1
Fluoride	U	ND	0.0330	0.100	mg/L		1					
Sulfate	J	0.279	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		19.0	2.38	10.0	mg/L			CH6	03/20/23	1316	2400766	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: March 29, 2023

Company : Dominion Energy Services, Inc.
Address : 120 Tredegar Street

Richmond, Virginia 23219
Contact: Kelly Hicks
Project: CCR Groundwater Monitoring - Level 1 Package

Client Sample ID:	DU-WAT-CCR-LF-23101	Project:	DMNN00101
Sample ID:	614780007	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	15-MAR-23 12:00		
Receive Date:	16-MAR-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		5.18	0.0670	0.200	mg/L		1	JLD1	03/21/23	1754	2401599	1
Fluoride	J	0.0394	0.0330	0.100	mg/L		1					
Sulfate		2.59	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		11.0	2.38	10.0	mg/L			CH6	03/20/23	1316	2400766	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: March 29, 2023

Company : Dominion Energy Services, Inc.
Address : 120 Tredegar Street

Richmond, Virginia 23219
Contact: Kelly Hicks
Project: CCR Groundwater Monitoring - Level 1 Package

Client Sample ID:	FBLK-WAT-CCR-LF-23101	Project:	DMNN00101
Sample ID:	614780008	Client ID:	DMNN001
Matrix:	AQ		
Collect Date:	15-MAR-23 12:25		
Receive Date:	16-MAR-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		0.556	0.0670	0.200	mg/L		1	JLD1	03/21/23	1826	2401599	1
Fluoride	U	ND	0.0330	0.100	mg/L		1					
Sulfate	U	ND	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids	U	ND	2.38	10.0	mg/L			CH6	03/20/23	1316	2400766	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: March 29, 2023

Company : Dominion Energy Services, Inc.
Address : 120 Tredegar Street

Richmond, Virginia 23219
Contact: Kelly Hicks
Project: CCR Groundwater Monitoring - Level 1 Package

Client Sample ID:	MW-LF-22-2023Q1	Project:	DMNN00101
Sample ID:	614780009	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	14-MAR-23 16:50		
Receive Date:	16-MAR-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		11.0	0.134	0.400	mg/L		2	JLD1	03/21/23	2241	2401599	1
Fluoride	J	0.0411	0.0330	0.100	mg/L		1	JLD1	03/21/23	1858	2401599	2
Sulfate		1.13	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		34.0	2.38	10.0	mg/L			CH6	03/20/23	1316	2400766	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	SM 2540C	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: March 29, 2023

Company : Dominion Energy Services, Inc.
Address : 120 Tredegar Street

Richmond, Virginia 23219
Contact: Kelly Hicks
Project: CCR Groundwater Monitoring - Level 1 Package

Client Sample ID:	AS-LF-01-2023Q1	Project:	DMNN00101
Sample ID:	614780010	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	15-MAR-23 11:40		
Receive Date:	16-MAR-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		9.59	0.0670	0.200	mg/L		1	JLD1	03/21/23	1930	2401599	1
Fluoride	J	0.0504	0.0330	0.100	mg/L		1					
Sulfate		0.665	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		14.0	2.38	10.0	mg/L			CH6	03/20/23	1316	2400766	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: March 29, 2023

Company : Dominion Energy Services, Inc.
Address : 120 Tredegar Street

Richmond, Virginia 23219
Contact: Kelly Hicks
Project: CCR Groundwater Monitoring - Level 1 Package

Client Sample ID:	AS-LF-02-2023Q1	Project:	DMNN00101
Sample ID:	614780011	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	15-MAR-23 13:12		
Receive Date:	16-MAR-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		3.13	0.0670	0.200	mg/L		1	JLD1	03/21/23	2002	2401599	1
Fluoride	J	0.0413	0.0330	0.100	mg/L		1					
Sulfate		3.74	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids	J	9.00	2.38	10.0	mg/L			CH6	03/20/23	1316	2400766	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: March 29, 2023

Company : Dominion Energy Services, Inc.
Address : 120 Tredegar Street

Richmond, Virginia 23219
Contact: Kelly Hicks
Project: CCR Groundwater Monitoring - Level 1 Package

Client Sample ID:	AS-LF-03-2023Q1	Project:	DMNN00101
Sample ID:	614780012	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	15-MAR-23 10:28		
Receive Date:	16-MAR-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		6.33	0.0670	0.200	mg/L		1	JLD1	03/21/23	2034	2401599	1
Fluoride	J	0.0414	0.0330	0.100	mg/L		1					
Sulfate	J	0.397	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		19.0	2.38	10.0	mg/L			CH6	03/20/23	1316	2400766	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: March 29, 2023

Company : Dominion Energy Services, Inc.
Address : 120 Tredegar Street

Richmond, Virginia 23219
Contact: Kelly Hicks
Project: CCR Groundwater Monitoring - Level 1 Package

Client Sample ID:	MW-BG-73-2023Q1	Project:	DMNN00101
Sample ID:	614780013	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	15-MAR-23 14:20		
Receive Date:	16-MAR-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		2.40	0.0670	0.200	mg/L		1	JLD1	03/21/23	2105	2401599	1
Fluoride	U	ND	0.0330	0.100	mg/L		1					
Sulfate	J	0.265	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids	U	ND	2.38	10.0	mg/L			CH6	03/20/23	1316	2400766	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

Quality Control Summary

QC Summary

Report Date: March 29, 2023

Dominion Energy Services, Inc.
120 Tredegar Street
Richmond, Virginia

Contact: **Kelly Hicks**

Workorder: **614780**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 2401599										
QC1205351911 614780003 DUP										
Chloride		9.74		9.57	mg/L	1.76		(0%-20%)	JLD1	03/21/23 13:39
Fluoride	J	0.0386	J	0.0381	mg/L	1.3 ^		(+/-0.100)		
Sulfate		2.61		2.61	mg/L	0.165		(0%-20%)		
QC1205351913 614780013 DUP										
Chloride		2.40		2.28	mg/L	5.14		(0%-20%)		03/21/23 21:37
Fluoride	U	ND	U	ND	mg/L	N/A				
Sulfate	J	0.265	J	0.247	mg/L	7 ^		(+/-0.400)		
QC1205351910 LCS										
Chloride	5.00			5.07	mg/L		101	(90%-110%)		03/21/23 11:32
Fluoride	2.50			2.52	mg/L		101	(90%-110%)		
Sulfate	10.0			10.1	mg/L		101	(90%-110%)		
QC1205351909 MB										
Chloride			U	ND	mg/L					03/21/23 11:01
Fluoride			U	ND	mg/L					
Sulfate			U	ND	mg/L					
QC1205351912 614780003 PS										
Chloride	5.00	9.74		15.6	mg/L		118*	(90%-110%)		03/21/23 14:11

QC Summary

Workorder: **614780**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 2401599											
Fluoride	2.50	J	0.0386		2.60	mg/L		102	(90%-110%)	JLD1	03/21/23 14:11
Sulfate	10.0		2.61		11.8	mg/L		92.1	(90%-110%)		
QC1205351914 614780013 PS											
Chloride	5.00		2.40		7.60	mg/L		104	(90%-110%)		03/21/23 22:09
Fluoride	2.50	U	ND		2.54	mg/L		100	(90%-110%)		
Sulfate	10.0	J	0.265		10.1	mg/L		98	(90%-110%)		
Solids Analysis											
Batch 2400766											
QC1205350110 614780003 DUP											
Total Dissolved Solids		J	8.00		23.0	mg/L	96.8*^		(+/-10.0)	CH6	03/20/23 13:16
QC1205350111 614780013 DUP											
Total Dissolved Solids		U	ND	J	6.00	mg/L	200				03/20/23 13:16
QC1205350109 LCS											
Total Dissolved Solids	300				300	mg/L		100	(95%-105%)		03/20/23 13:16
QC1205350108 MB											
Total Dissolved Solids				U	ND	mg/L					03/20/23 13:16

Notes:

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- H Analytical holding time was exceeded
- < Result is less than value reported
- > Result is greater than value reported

QC Summary

Workorder: **614780**

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

h	Preparation or preservation holding time was exceeded
R	Sample results are rejected
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
N/A	RPD or %Recovery limits do not apply.
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
N1	See case narrative
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.
B	The target analyte was detected in the associated blank.
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
J	See case narrative for an explanation

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.

This quality assurance (QA) review is based upon an examination of the data generated from the analyses of the samples collected as part of:

Wateree Power Station Groundwater Sampling
Samples Collected between: 3/13/2023 and 3/16/2023

This review was performed with guidance from the associated US EPA data validation guidelines and in accordance with the Quality Assurance Program Plan. These validation guidance documents specifically address analyses performed in accordance with the Contract Laboratory Program (CLP) analytical methods and are not completely applicable to the type of analyses and analytical protocols performed for the US EPA, SW-846, and Standard Methods utilized by the laboratory for these samples. Environmental Standards, Inc. (Environmental Standards) used professional judgment to determine the usability of the analytical results and compliance relative to the US EPA, SW-846, and Standard Methods utilized by the laboratory. This QA review was performed on the data associated with Job Number:

614780

The findings offered in this report are based on a review of holding times and preservation, method blank results, field blank results, filter blank results, equipment blank results, tubing blank results, matrix spike/matrix spike duplicate recoveries and precision, laboratory control sample/laboratory control sample duplicate recoveries and precision, laboratory and field duplicate precision, total and dissolved results comparisons, and/or positive results between the method detection limit and quantitation limit.

The following results were qualified based on the data verification effort:

Sample	Location	Sample Type	Method	Anayte	T/D	Result	Qual	Reason Code(s)	MDL	QL	Uncertainty	Unit
MW-LF-01-2023Q1	MW-01LF	N	EPA 200.8	Boron	T	8.89	J	RL	4.00	15.0		ug/L
MW-LF-01-2023Q1	MW-01LF	N	EPA 300.0	Fluoride	N	0.0384	J	RL	0.0330	0.100		mg/L
MW-LF-01-2023Q1	MW-01LF	N	EPA 300.0	Sulfate	N	0.362	J	RL	0.133	0.400		mg/L
MW-LF-01-2023Q1	MW-01LF	N	SM 2540C	Total Dissolved Solids	N	16.0	J	LD	2.38	10.0		mg/L
MW-LF-06-2023Q1	MW-06LF	N	EPA 200.8	Boron	T	5.56	J	RL	4.00	15.0		ug/L
MW-LF-06-2023Q1	MW-06LF	N	SM 2540C	Total Dissolved Solids	N	19.0	J	LD	2.38	10.0		mg/L
MW-LF-07-2023Q1	MW-LF-07	N	EPA 200.8	Boron	T	6.23	J	RL	4.00	15.0		ug/L
MW-LF-07-2023Q1	MW-LF-07	N	EPA 300.0	Fluoride	N	0.0386	J	RL	0.0330	0.100		mg/L
MW-LF-07-2023Q1	MW-LF-07	N	SM 2540C	Total Dissolved Solids	N	8.00	J	LD	2.38	10.0		mg/L
MW-LF-08-2023Q1	MW-LF-08	N	EPA 200.8	Boron	T	6.86	J	RL	4.00	15.0		ug/L
MW-LF-08-2023Q1	MW-LF-08	N	EPA 300.0	Chloride	N	5.36	J+	BL	0.0670	0.200		mg/L
MW-LF-08-2023Q1	MW-LF-08	N	EPA 300.0	Sulfate	N	0.334	J	RL	0.133	0.400		mg/L
MW-LF-08-2023Q1	MW-LF-08	N	SM 2540C	Total Dissolved Solids	N	13.0	J	LD	2.38	10.0		mg/L
MW-LF-10A-2023Q1	MW-LF-10A	N	EPA 200.8	Boron	T	5.12	J	RL	4.00	15.0		ug/L
MW-LF-10A-2023Q1	MW-LF-10A	N	EPA 300.0	Chloride	N	4.98	J+	BL	0.0670	0.200		mg/L
MW-LF-10A-2023Q1	MW-LF-10A	N	EPA 300.0	Fluoride	N	0.0379	J	RL	0.0330	0.100		mg/L
MW-LF-10A-2023Q1	MW-LF-10A	N	SM 2540C	Total Dissolved Solids	N	8.00	J	LD	2.38	10.0		mg/L
MW-LF-11-2023Q1	MW-LF-11	N	EPA 200.8	Boron	T	5.90	J	RL	4.00	15.0		ug/L
MW-LF-11-2023Q1	MW-LF-11	N	EPA 300.0	Sulfate	N	0.279	J	RL	0.133	0.400		mg/L
MW-LF-11-2023Q1	MW-LF-11	N	SM 2540C	Total Dissolved Solids	N	19.0	J	LD	2.38	10.0		mg/L
DU-WAT-CCR-LF-23101_1200	MW-LF-10A	FD	EPA 200.8	Boron	T	5.66	J	RL	4.00	15.0		ug/L
DU-WAT-CCR-LF-23101_1200	MW-LF-10A	FD	EPA 300.0	Chloride	N	5.18	J+	BL	0.0670	0.200		mg/L
DU-WAT-CCR-LF-23101_1200	MW-LF-10A	FD	EPA 300.0	Fluoride	N	0.0394	J	RL	0.0330	0.100		mg/L
DU-WAT-CCR-LF-23101_1200	MW-LF-10A	FD	SM 2540C	Total Dissolved Solids	N	11.0	J	LD	2.38	10.0		mg/L
MW-LF-22-2023Q1	MW-LF-22	N	EPA 200.8	Boron	T	9.49	J	RL	4.00	15.0		ug/L
MW-LF-22-2023Q1	MW-LF-22	N	EPA 300.0	Fluoride	N	0.0411	J	RL	0.0330	0.100		mg/L
MW-LF-22-2023Q1	MW-LF-22	N	SM 2540C	Total Dissolved Solids	N	34.0	J	LD	2.38	10.0		mg/L
AS-LF-01-2023Q1	AS-LF-01	N	EPA 200.8	Boron	T	6.22	J	RL	4.00	15.0		ug/L

Sample	Location	Sample Type	Method	Anayte	T/D	Result	Qual	Reason Code(s)	MDL	QL	Uncertainty	Unit
AS-LF-01-2023Q1	AS-LF-01	N	EPA 300.0	Fluoride	N	0.0504	J	RL	0.0330	0.100		mg/L
AS-LF-01-2023Q1	AS-LF-01	N	SM 2540C	Total Dissolved Solids	N	14.0	J	LD	2.38	10.0		mg/L
AS-LF-02-2023Q1	AS-LF-02	N	EPA 200.8	Boron	T	6.66	J	RL	4.00	15.0		ug/L
AS-LF-02-2023Q1	AS-LF-02	N	EPA 300.0	Chloride	N	3.13	J+	BL	0.0670	0.200		mg/L
AS-LF-02-2023Q1	AS-LF-02	N	EPA 300.0	Fluoride	N	0.0413	J	RL	0.0330	0.100		mg/L
AS-LF-02-2023Q1	AS-LF-02	N	SM 2540C	Total Dissolved Solids	N	9.00	J	LD	2.38	10.0		mg/L
AS-LF-03-2023Q1	AS-LF-03	N	EPA 200.8	Boron	T	5.24	J	RL	4.00	15.0		ug/L
AS-LF-03-2023Q1	AS-LF-03	N	EPA 300.0	Fluoride	N	0.0414	J	RL	0.0330	0.100		mg/L
AS-LF-03-2023Q1	AS-LF-03	N	EPA 300.0	Sulfate	N	0.397	J	RL	0.133	0.400		mg/L
AS-LF-03-2023Q1	AS-LF-03	N	SM 2540C	Total Dissolved Solids	N	19.0	J	LD	2.38	10.0		mg/L
MW-BG-73-2023Q1	MW-BG-73	N	EPA 200.8	Boron	T	6.60	J	RL	4.00	15.0		ug/L
MW-BG-73-2023Q1	MW-BG-73	N	EPA 300.0	Chloride	N		U	BF	2.40	2.40		mg/L
MW-BG-73-2023Q1	MW-BG-73	N	EPA 300.0	Sulfate	N	0.265	J	RL	0.133	0.400		mg/L

Data Qualifiers	
U	The analyte was not detected above the level of the sample reporting limit.
J	Quantitation is approximate due to limitations identified during data validation.
J+	The result is an estimated quantity; the result may be biased high.
J-	The result is an estimated quantity; the result may be biased low.
UJ	The analyte was not detected; the reporting limit is approximate and may be inaccurate or imprecise.
R	Unreliable positive result; analyte may or may not be present in sample.
Reason Codes and Explanations	
BE	Equipment blank contamination.
BF	Field blank contamination.
BL	Laboratory blank contamination.
BN	Negative laboratory blank contamination.
FD	Field duplicate imprecision.
FG	Total versus Dissolved Imprecision.
H	Holding time exceeded.
L	LCS and LCSD recoveries outside of acceptance limits
LD	Laboratory duplicate imprecision.
LP	LCS/LCSD imprecision.
M	MS and MSD recoveries outside of acceptance limits
MP	MS/MSD imprecision.
Q	Chemical Preservation issue.
RL	Reported Results between the MDL and QL.
S	Radium-226+228 flagged due to reporting protocol for combined results
T	Temperature preservation issue.
X	Percent solids < 50%.
Y	Chemical yield outside of acceptance limits
ZZ	Other

Facility: Wateree Generating Station
SDG: 614780

Lab Sample ID	614780001
Sys Sample Code	MW-LF-01-2023Q1
Sample Name	MW-LF-01-2023Q1
Sample Date	3/15/2023 10:30:00 AM
Location	WAT-MW-01LF / MW-01LF
Sample Type	N
Matrix	GW
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	8.89	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	166				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	8.22				0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L	0.0384	J	RL		0.0330	0.0330	0.100	Y	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	0.362	J	RL		0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	16.0	J	LD		2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	614780002
Sys Sample Code	MW-LF-06-2023Q1
Sample Name	MW-LF-06-2023Q1
Sample Date	3/15/2023 10:35:00 AM
Location	WAT-MW-06LF / MW-06LF
Sample Type	N
Matrix	GW
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	5.56	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	868				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	7.00				0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L		U			0.0330	0.0330	0.100	N	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	0.408				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	19.0	J	LD		2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	614780003
Sys Sample Code	MW-LF-07-2023Q1
Sample Name	MW-LF-07-2023Q1
Sample Date	3/15/2023 1:39:00 PM
Location	WAT-MW-LF-07 / MW-LF-07
Sample Type	N
Matrix	GW
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	6.23	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	999				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	9.74				0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L	0.0386	J	RL		0.0330	0.0330	0.100	Y	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	2.61				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	8.00	J	LD		2.38	2.38	10.0	Y	Yes	1	NA

Facility: Wateree Generating Station
SDG: 614780

Lab Sample ID	614780004
Sys Sample Code	MW-LF-08-2023Q1
Sample Name	MW-LF-08-2023Q1
Sample Date	3/15/2023 1:40:00 PM
Location	WAT-MW-LF-08 / MW-LF-08
Sample Type	N
Matrix	GW
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	6.86	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	835				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	5.36	J+	BL		0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L		U			0.0330	0.0330	0.100	N	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	0.334	J	RL		0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	13.0	J	LD		2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	614780005
Sys Sample Code	MW-LF-10A-2023Q1
Sample Name	MW-LF-10A-2023Q1
Sample Date	3/15/2023 12:08:00 PM
Location	WAT-MW-LF-10A / MW-LF-10A
Sample Type	N
Matrix	GW
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	5.12	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	1080				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	4.98	J+	BL		0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L	0.0379	J	RL		0.0330	0.0330	0.100	Y	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	2.60				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	8.00	J	LD		2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	614780006
Sys Sample Code	MW-LF-11-2023Q1
Sample Name	MW-LF-11-2023Q1
Sample Date	3/15/2023 11:55:00 AM
Location	WAT-MW-LF-11 / MW-LF-11
Sample Type	N
Matrix	GW
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	5.90	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	348				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	9.16				0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L		U			0.0330	0.0330	0.100	N	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	0.279	J	RL		0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	19.0	J	LD		2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	614780007
Sys Sample Code	DU-WAT-CCR-LF-23101_1200
Sample Name	DU-WAT-CCR-LF-23101
Sample Date	3/15/2023 12:00:00 AM
Location	WAT-MW-LF-10A / MW-LF-10A
Sample Type	FD
Matrix	GW
Parent Sample	MW-LF-10A-2023Q1

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	5.66	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	982				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	5.18	J+	BL		0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L	0.0394	J	RL		0.0330	0.0330	0.100	Y	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	2.59				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	11.0	J	LD		2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	614780008
Sys Sample Code	FBLK-WAT-CCR-LF-23101
Sample Name	FBLK-WAT-CCR-LF-23101
Sample Date	3/15/2023 12:25:00 PM
Location	WAT-CCRLF-FB / Field Blank
Sample Type	FB
Matrix	AQ
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L		U			4.00	4.00	15.0	N	Yes	1	NA
	Calcium	7440-70-2	T	ug/L		U			30.0	30.0	100	N	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	0.556				0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L		U			0.0330	0.0330	0.100	N	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L		U			0.133	0.133	0.400	N	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L		U			2.38	2.38	10.0	N	Yes	1	NA

Lab Sample ID	614780009
Sys Sample Code	MW-LF-22-2023Q1
Sample Name	MW-LF-22-2023Q1
Sample Date	3/14/2023 4:50:00 PM
Location	WAT-MW-LF-22 / MW-LF-22
Sample Type	N
Matrix	GW
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	9.49	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	2130				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	11.0				0.134	0.134	0.400	Y	Yes	2	NA
EPA 300.0	Fluoride	16984-48-8	N	mg/L	0.0411	J	RL		0.0330	0.0330	0.100	Y	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	1.13				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	34.0	J	LD		2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	614780010
Sys Sample Code	AS-LF-01-2023Q1
Sample Name	AS-LF-01-2023Q1
Sample Date	3/15/2023 11:40:00 AM
Location	WAT-AS-LF-01 / AS-LF-01
Sample Type	N
Matrix	GW
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	6.22	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	904				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	9.59				0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L	0.0504	J	RL		0.0330	0.0330	0.100	Y	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	0.665				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	14.0	J	LD		2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	614780011
Sys Sample Code	AS-LF-02-2023Q1
Sample Name	AS-LF-02-2023Q1
Sample Date	3/15/2023 1:12:00 PM
Location	WAT-AS-LF-02 / AS-LF-02
Sample Type	N
Matrix	GW
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	6.66	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	2690				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	3.13	J+	BL		0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L	0.0413	J	RL		0.0330	0.0330	0.100	Y	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	3.74				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	9.00	J	LD		2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	614780012
Sys Sample Code	AS-LF-03-2023Q1
Sample Name	AS-LF-03-2023Q1
Sample Date	3/15/2023 10:28:00 AM
Location	WAT-AS-LF-03 / AS-LF-03
Sample Type	N
Matrix	GW
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	5.24	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	760				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	6.33				0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L	0.0414	J	RL		0.0330	0.0330	0.100	Y	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	0.397	J	RL		0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	19.0	J	LD		2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	614780013
Sys Sample Code	MW-BG-73-2023Q1
Sample Name	MW-BG-73-2023Q1
Sample Date	3/15/2023 2:20:00 PM
Location	WAT-MW-BG-73 / MW-BG-73
Sample Type	N
Matrix	GW
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	6.60	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	302				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L		U	BF		2.40	2.40	2.40	N	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L		U			0.0330	0.0330	0.100	N	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	0.265	J	RL		0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L		U			2.38	2.38	10.0	N	Yes	1	NA

Appendix D
Second Semiannual Detection Monitoring Program Event Field Data Sheets, Laboratory Reports, and Data Validation Forms

Dominion Groundwater Level Measurement Log
For Wateree Generating Station

Program: CCR	**Project Number:** 416559.5.0
Date: 2023-10-10	**Sampler Name(s):** David Szynal
Notes:	

Well ID	Time	Depth to GW (btoc, ft)	Depth to Bottom (btoc, ft)	Notes
WAT-MW-LF-01D	10:54	24.47		
WAT-MW-FGD-01	11:59	24.74		
WAT-MW-LF-07	11:59	24.23		
WAT-MW-BG-73	12:03	11.16		
WAT-AS-LF-03	12:10	27.63		
WAT-MW-BG-74	12:13	24.81		
MW-LF-01	12:17	24.45		
MW-LF-06	12:24	34.00		
WAT-AS-LF-01	12:36	32.20		
WAT-MW-05LF	12:42	37.33		
WAT-MW-03LF	12:48	34.71		
WAT-MW-LF-08	13:54	25.29		
WAT-MW-LF-12	13:00	32.05		
WAT-AS-LF-02	13:03	32.88		
WAT-MW-04LF	13:15	22.01		
WAT-MW-LF-11	13:18	22.17		
WAT-MW-LF-10A	13:20	20.38		
MW-LF-22	13:25	22.24		

WATER SAMPLE LOG: AS-LF-02-2023Q4
WATEREE GENERATING STATION

PREPARED BY	CHECKED BY
BY: David Szynal DATE: 2023-10-10	BY: Jason Yonts DATE: 2023-10-11

WELL ID: WAT-AS-LF-02		
TASK CODE: WAT-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 32.88	TOTAL DEPTH TO WATER (FT): 55.66	TOTAL WATER COLUMN (FT): 22.78
TOP OF SCREEN (FT): 42	BOTTOM OF SCREEN (FT): 52	METHOD OF PURGING: Low Flow
PUMP TYPE: Bladder	PUMP START TIME: 15:15	PUMP INTAKE DEPTH/SAMPLE DEPTH (FT): 50

PURGING	
METHOD: Low Flow	MEASURE POINT: Top of Casing
PUMP TYPE: Bladder	PUMP INTAKE/SAMPLE DEPTH (FT) : 50
PURGE AND STABILIZATION NOTES:	

PURGE MEASURES

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (US/CM)	ORP (MV)	DO (MG/L)	TURDIDITY (NTU)	TEMPERATURE (C)	WATER LEVEL	COMMENTS
15:20	125	5.03	36.42	163.7	7.47	3.47	29.96	33.1	
15:25	125	4.98	36.08	16.77	5.77	1.42	28.55	33.23	
15:30	125	4.92	34.33	174.5	3.84	1.38	27.06	33.36	
15:35	125	4.7	31.26	190.9	3.43	1.2	26.83	33.48	
15:40	125	4.59	29.96	205.1	3.11	1.1	26.31	33.6	
15:45	125	4.62	29.66	207.8	3	1.09	26.15	33.68	
15:50	125	4.58	29.74	210.7	3	1.06	26.06	33.74	

SAMPLE	
TIME: 15:50	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML): 4375	TIME POST SAMPLE: 16:00
WATER LEVEL POST-SAMPLE: 33.79	FLOW RATE POST-SAMPLE (ML/MIN): 125
TURBIDITY POST-SAMPLE (NTU): 1.01	COLOR POST SAMPLE: Clear
ODOR POST-SAMPLE: None	STABILITY REACHED: Y
SAMPLE COMMENTS:	

SAMPLE QA					
TYPE	**ID**	**TIME**	**TYPE**	**ID**	**TIME**
FIELD BLANK			FIELD DUPLICATE		
EQUIPMENT BLANK			FILTER BLANK		
EQUIPMENT BLANK			FILTER BLANK LOT:		
TUBING BLANK LOT:			MS/MSD	NO	

BOTTLES				
BOTTLE LOT NUMBER	**BOTTLE COUNT**	**SIZE (ML)**	**TYPE**	**PRESERVATIVE**
	1	250	HDPE	HNO3
	1	250	HDPE	UNPRESERVED
	1	125	HDPE	UNPRESERVED

WATER SAMPLE LOG: AS-LF-03-2023Q4
WATEREE GENERATING STATION

PREPARED BY	CHECKED BY
BY: Sam Thorsland DATE: 2023-10-10	BY: Jason Yonts DATE: 2023-10-11

WELL ID: WAT-AS-LF-03		
TASK CODE: WAT-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 27.56	TOTAL DEPTH TO WATER (FT): 38.1	TOTAL WATER COLUMN (FT): 10.54
TOP OF SCREEN (FT): 28.1	BOTTOM OF SCREEN (FT): 30.1	METHOD OF PURGING: Low Flow
PUMP TYPE: Peristaltic	PUMP START TIME: 16:45	PUMP INTAKE DEPTH/SAMPLE DEPTH (FT): 25

PURGING	
METHOD: Low Flow	MEASURE POINT: Top of Casing
PUMP TYPE: Peristaltic	PUMP INTAKE/SAMPLE DEPTH (FT) : 25
PURGE AND STABILIZATION NOTES:	

PURGE MEASURES

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (US/CM)	ORP (MV)	DO (MG/L)	TURDIDITY (NTU)	TEMPERATURE (C)	WATER LEVEL	COMMENTS
16:50	150	4.31	59.51	344.7	7.08	1.53	24.77	27.59	
17:05	150	4.32	60.7	247.5	7.2	1.56	23.66	27.59	
17:10	150	4.32	59.57	142.1	7.09	1.39	24.02	27.59	
17:15	150	4.31	60.17	229	7.15	1.06	23.38	27.59	
17:20	150	4.31	59.15	227.1	6.99	0.82	23.67	27.59	

SAMPLE	
TIME: 17:20	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML): 5250	TIME POST SAMPLE: 17:29
WATER LEVEL POST-SAMPLE: 27.59	FLOW RATE POST-SAMPLE (ML/MIN): 150
TURBIDITY POST-SAMPLE (NTU): 0.46	COLOR POST SAMPLE: Clear
ODOR POST-SAMPLE: None	STABILITY REACHED: Y
SAMPLE COMMENTS:	

SAMPLE QA					
TYPE	**ID**	**TIME**	**TYPE**	**ID**	**TIME**
FIELD BLANK	FBLK-WAT-CCR-LF-23402	17:40	FIELD DUPLICATE		
EQUIPMENT BLANK			FILTER BLANK		
EQUIPMENT BLANK			FILTER BLANK LOT:		
TUBING BLANK LOT:			MS/MSD	NO	

BOTTLES				
BOTTLE LOT NUMBER	**BOTTLE COUNT**	**SIZE (ML)**	**TYPE**	**PRESERVATIVE**
0102401I	1	250	HDPE	HNO3
	1	250	HDPE	UNPRESERVED
	1	125	HDPE	UNPRESERVED

WATER SAMPLE LOG: MW-BG-74-2023Q4
WATEREE GENERATING STATION

PREPARED BY	CHECKED BY
BY: David Szynal DATE: 2023-10-10	BY: Jason Yonts DATE: 2023-10-11

WELL ID: WAT-MW-BG-74		
TASK CODE: WAT-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 24.81	TOTAL DEPTH TO WATER (FT): 51.5	TOTAL WATER COLUMN (FT): 26.69
TOP OF SCREEN (FT): 40.7	BOTTOM OF SCREEN (FT): 50.7	METHOD OF PURGING: Low Flow
PUMP TYPE: Peristaltic	PUMP START TIME: 16:25	PUMP INTAKE DEPTH/SAMPLE DEPTH (FT): 45

PURGING	
METHOD: Low Flow	MEASURE POINT: Top of Casing
PUMP TYPE: Peristaltic	PUMP INTAKE/SAMPLE DEPTH (FT) : 45
PURGE AND STABILIZATION NOTES:	

PURGE MEASURES

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (US/CM)	ORP (MV)	DO (MG/L)	TURDIDITY (NTU)	TEMPERATURE (C)	WATER LEVEL	COMMENTS
16:30	150	5.2	75.29	123	4.07	500	27.48	24.9	
16:35	150	5.43	72.97	111.6	3.24	62.9	25.33	24.9	
16:40	150	5.49	68.3	115.5	3.68	60.22	25.43	24.9	
16:45	150	5.39	56.04	126	4.55	29.3	24.9	24.9	
16:50	150	5.15	44.07	146.7	5.09	28.47	24.3	24.9	
16:55	150	5.07	41.27	160.4	5.23	22.34	24.36	24.9	
17:00	150	4.99	39.22	175.7	5.35	14.51	23.99	24.9	
17:05	150	4.93	38.59	182.4	5.47	9.74	23.82	24.9	
17:10	150	4.89	37.58	191.1	5.37	8.24	23.71	24.9	
17:15	150	4.86	37.09	197.5	5.49	5.96	23.4	24.9	
17:20	150	4.82	36.66	202.2	5.49	5.11	23.64	24.9	
17:25	150	4.85	36.84	204.6	5.43	5.08	23.69	24.9	

SAMPLE	
TIME: 17:25	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML): 9000	TIME POST SAMPLE: 17:45
WATER LEVEL POST-SAMPLE: 24.9	FLOW RATE POST-SAMPLE (ML/MIN): 150
TURBIDITY POST-SAMPLE (NTU): 4.8	COLOR POST SAMPLE: Clear
ODOR POST-SAMPLE: None	STABILITY REACHED: Y

SAMPLE COMMENTS:

SAMPLE QA					
TYPE	**ID**	**TIME**	**TYPE**	**ID**	**TIME**
FIELD BLANK			FIELD DUPLICATE		
EQUIPMENT BLANK			FILTER BLANK		
EQUIPMENT BLANK			FILTER BLANK LOT:		
TUBING BLANK LOT:			MS/MSD	NO	

BOTTLES				
BOTTLE LOT NUMBER	**BOTTLE COUNT**	**SIZE (ML)**	**TYPE**	**PRESERVATIVE**
	1	250	HDPE	HNO3
	1	250	HDPE	UNPRESERVED
	1	125	HDPE	UNPRESERVED

WATER SAMPLE LOG: MW-LF-01D-2023Q4
WATEREE GENERATING STATION

PREPARED BY	CHECKED BY
BY: Sam Thorsland DATE: 2023-10-10	BY: Jason Yonts DATE: 2023-10-11

WELL ID: WAT-MW-LF-01D		
TASK CODE: WAT-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 24.47	TOTAL DEPTH TO WATER (FT): 52.41	TOTAL WATER COLUMN (FT): 27.94
TOP OF SCREEN (FT): 42.41	BOTTOM OF SCREEN (FT): 52.41	METHOD OF PURGING: Low Flow
PUMP TYPE: Peristaltic	PUMP START TIME: 10:21	PUMP INTAKE DEPTH/SAMPLE DEPTH (FT): 47

PURGING	
METHOD: Low Flow	MEASURE POINT: Top of Casing
PUMP TYPE: Peristaltic	PUMP INTAKE/SAMPLE DEPTH (FT) : 47
PURGE AND STABILIZATION NOTES:	

PURGE MEASURES

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (US/CM)	ORP (MV)	DO (MG/L)	TURDIDITY (NTU)	TEMPERATURE (C)	WATER LEVEL	COMMENTS
10:25	130	4.65	55.37	221.5	4.91	1.46	21.37	24.59	
10:40	130	4.64	51.01	199.2	4.9	0.76	21.72	24.6	
10:45	130	4.65	50.42	187.2	4.91	0.63	21.63	24.6	
10:50	130	4.64	50.47	183.3	4.93	0.79	21.57	24.6	
10:55	130	4.65	50.23	181.9	4.9	0.29	21.59	24.61	

SAMPLE	
TIME: 10:55	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML): 4420	TIME POST SAMPLE: 11:06
WATER LEVEL POST-SAMPLE: 24.61	FLOW RATE POST-SAMPLE (ML/MIN): 130
TURBIDITY POST-SAMPLE (NTU): 0.45	COLOR POST SAMPLE: Clear
ODOR POST-SAMPLE: None	STABILITY REACHED: Y
SAMPLE COMMENTS:	

SAMPLE QA					
TYPE	**ID**	**TIME**	**TYPE**	**ID**	**TIME**
FIELD BLANK			FIELD DUPLICATE		
EQUIPMENT BLANK			FILTER BLANK		
EQUIPMENT BLANK			FILTER BLANK LOT:		
TUBING BLANK LOT:			MS/MSD	NO	

BOTTLES				
BOTTLE LOT NUMBER	**BOTTLE COUNT**	**SIZE (ML)**	**TYPE**	**PRESERVATIVE**
0102401I	1	250	HDPE	HNO3
	1	250	HDPE	UNPRESERVED
	1	125	HDPE	UNPRESERVED

WATER SAMPLE LOG: MW-LF-07-2023Q4
WATEREE GENERATING STATION

PREPARED BY	CHECKED BY
BY: Sam Thorsland DATE: 2023-10-10	BY: Jason Yonts DATE: 2023-10-11

WELL ID: WAT-MW-LF-07		
TASK CODE: WAT-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 24.31	TOTAL DEPTH TO WATER (FT): 31.76	TOTAL WATER COLUMN (FT): 7.45
TOP OF SCREEN (FT): 21.76	BOTTOM OF SCREEN (FT): 31.76	METHOD OF PURGING: Low Flow
PUMP TYPE: Peristaltic	PUMP START TIME: 11:26	PUMP INTAKE DEPTH/SAMPLE DEPTH (FT): 26

PURGING	
METHOD: Low Flow	MEASURE POINT: Top of Casing
PUMP TYPE: Peristaltic	PUMP INTAKE/SAMPLE DEPTH (FT) : 26
PURGE AND STABILIZATION NOTES:	

PURGE MEASURES

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (US/CM)	ORP (MV)	DO (MG/L)	TURDIDITY (NTU)	TEMPERATURE (C)	WATER LEVEL	COMMENTS
11:30	80	4.4	81.25	190.5	6.19	18.2	23.45	24.55	
11:45	80	4.42	68.89	179.1	7.08	12.06	23.72	24.66	
11:55	80	4.41	68.28	178.1	7.17	5.19	23.69	24.69	
12:00	80	4.41	68.41	177.8	7.17	3.82	23.79	24.69	
12:05	80	4.42	68.9	177.5	7.21	3.79	23.83	24.69	
12:10	80	4.41	69.52	176.7	7.25	3.52	23.7	24.69	

SAMPLE	
TIME: 12:10	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML): 3520	TIME POST SAMPLE: 12:34
WATER LEVEL POST-SAMPLE: 24.72	FLOW RATE POST-SAMPLE (ML/MIN): 80
TURBIDITY POST-SAMPLE (NTU): 1.9	COLOR POST SAMPLE: Clear
ODOR POST-SAMPLE: None	STABILITY REACHED: Y
SAMPLE COMMENTS:	

SAMPLE QA					
TYPE	**ID**	**TIME**	**TYPE**	**ID**	**TIME**
FIELD BLANK			FIELD DUPLICATE	DU-WAT-CCR-LF-23401	13:09
EQUIPMENT BLANK			FILTER BLANK		
EQUIPMENT BLANK			FILTER BLANK LOT:		
TUBING BLANK LOT:			MS/MSD	NO	

BOTTLES				
BOTTLE LOT NUMBER	**BOTTLE COUNT**	**SIZE (ML)**	**TYPE**	**PRESERVATIVE**
0102401I	1	250	HDPE	HNO3
	1	250	HDPE	UNPRESERVED
	1	125	HDPE	UNPRESERVED

WATER SAMPLE LOG: MW-LF-08-2023Q4
WATEREE GENERATING STATION

PREPARED BY	CHECKED BY
BY: Sam Thorsland DATE: 2023-10-10	BY: Jason Yonts DATE: 2023-10-11

WELL ID: WAT-MW-LF-08		
TASK CODE: WAT-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 25.29	TOTAL DEPTH TO WATER (FT): 36.08	TOTAL WATER COLUMN (FT): 10.79
TOP OF SCREEN (FT): 26.08	BOTTOM OF SCREEN (FT): 36.08	METHOD OF PURGING: Low Flow
PUMP TYPE: Peristaltic	PUMP START TIME: 12:46	PUMP INTAKE DEPTH/SAMPLE DEPTH (FT): 31

PURGING	
METHOD: Low Flow	MEASURE POINT: Top of Casing
PUMP TYPE: Peristaltic	PUMP INTAKE/SAMPLE DEPTH (FT) : 31
PURGE AND STABILIZATION NOTES:	

PURGE MEASURES

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (US/CM)	ORP (MV)	DO (MG/L)	TURDIDITY (NTU)	TEMPERATURE (C)	WATER LEVEL	COMMENTS
12:50	130	4.63	45.92	156.5	6.93	11.4	24.58	25.33	
13:05	130	4.64	42.57	158.5	7.24	3.43	24.07	25.33	
13:10	130	4.65	42.72	159.2	7.29	1.41	24.1	25.33	
13:15	130	4.64	42.65	160	7.29	1.23	21.24	25.33	
13:20	130	4.65	43.04	160.4	7.3	0.84	24.24	25.33	

SAMPLE	
TIME: 13:20	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML): 4420	TIME POST SAMPLE: 13:32
WATER LEVEL POST-SAMPLE: 25.33	FLOW RATE POST-SAMPLE (ML/MIN): 130
TURBIDITY POST-SAMPLE (NTU): 0.58	COLOR POST SAMPLE: Clear
ODOR POST-SAMPLE: None	STABILITY REACHED: Y
SAMPLE COMMENTS:	

SAMPLE QA					
TYPE	**ID**	**TIME**	**TYPE**	**ID**	**TIME**
FIELD BLANK			FIELD DUPLICATE		
EQUIPMENT BLANK			FILTER BLANK		
EQUIPMENT BLANK			FILTER BLANK LOT:		
TUBING BLANK LOT:			MS/MSD	NO	

BOTTLES				
BOTTLE LOT NUMBER	**BOTTLE COUNT**	**SIZE (ML)**	**TYPE**	**PRESERVATIVE**
0102401I	1	250	HDPE	HNO3
	1	250	HDPE	UNPRESERVED
	1	125	HDPE	UNPRESERVED

WATER SAMPLE LOG: MW-LF-10A-2023Q4
WATEREE GENERATING STATION

PREPARED BY	CHECKED BY
BY: Sam Thorsland DATE: 2023-10-10	BY: Jason Yonts DATE: 2023-10-11

WELL ID: WAT-MW-LF-10A		
TASK CODE: WAT-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 20.33	TOTAL DEPTH TO WATER (FT): 28.62	TOTAL WATER COLUMN (FT): 8.29
TOP OF SCREEN (FT): 18.62	BOTTOM OF SCREEN (FT): 28.62	METHOD OF PURGING: Low Flow
PUMP TYPE: Peristaltic	PUMP START TIME: 14:49	PUMP INTAKE DEPTH/SAMPLE DEPTH (FT): 22

PURGING	
METHOD: Low Flow	MEASURE POINT: Top of Casing
PUMP TYPE: Peristaltic	PUMP INTAKE/SAMPLE DEPTH (FT) : 22
PURGE AND STABILIZATION NOTES:	

PURGE MEASURES

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (US/CM)	ORP (MV)	DO (MG/L)	TURDIDITY (NTU)	TEMPERATURE (C)	WATER LEVEL	COMMENTS
14:55	150	4.5	40.53	281.9	4.73	10.2	26.79	20.34	
15:10	150	4.52	37.29	225.2	4.87	4.79	24.26	20.35	
15:15	150	4.5	36.41	220.3	4.92	3.86	24.01	20.35	
15:20	150	4.48	36.61	207.8	5.09	3.4	23.97	20.35	
15:25	150	4.52	36.38	210.6	4.96	3.3	23.96	20.35	

SAMPLE	
TIME: 15:15	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML): 3900	TIME POST SAMPLE: 15:35
WATER LEVEL POST-SAMPLE: 20.35	FLOW RATE POST-SAMPLE (ML/MIN): 150
TURBIDITY POST-SAMPLE (NTU): 1.76	COLOR POST SAMPLE: Clear
ODOR POST-SAMPLE: None	STABILITY REACHED: Y
SAMPLE COMMENTS:	

SAMPLE QA					
TYPE	**ID**	**TIME**	**TYPE**	**ID**	**TIME**
FIELD BLANK	FBLK-WAT-CCR-LF-23401	15:40	FIELD DUPLICATE		
EQUIPMENT BLANK			FILTER BLANK		
EQUIPMENT BLANK			FILTER BLANK LOT:		
TUBING BLANK LOT:			MS/MSD	NO	

BOTTLES				
BOTTLE LOT NUMBER	**BOTTLE COUNT**	**SIZE (ML)**	**TYPE**	**PRESERVATIVE**
0102401I	1	250	HDPE	HNO3
	1	250	HDPE	UNPRESERVED
	1	125	HDPE	UNPRESERVED

WATER SAMPLE LOG: MW-LF-11-2023Q4
WATEREE GENERATING STATION

PREPARED BY	CHECKED BY
BY: Sam Thorsland DATE: 2023-10-10	BY: Jason Yonts DATE: 2023-10-11

WELL ID: WAT-MW-LF-11		
TASK CODE: WAT-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 22.13	TOTAL DEPTH TO WATER (FT): 30.24	TOTAL WATER COLUMN (FT): 8.11
TOP OF SCREEN (FT): 20.24	BOTTOM OF SCREEN (FT): 30.24	METHOD OF PURGING: Low Flow
PUMP TYPE: Peristaltic	PUMP START TIME: 15:56	PUMP INTAKE DEPTH/SAMPLE DEPTH (FT): 24

PURGING	
METHOD: Low Flow	MEASURE POINT: Top of Casing
PUMP TYPE: Peristaltic	PUMP INTAKE/SAMPLE DEPTH (FT) : 24
PURGE AND STABILIZATION NOTES:	

PURGE MEASURES

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (US/CM)	ORP (MV)	DO (MG/L)	TURDIDITY (NTU)	TEMPERATURE (C)	WATER LEVEL	COMMENTS
16:00	150	4.7	73.36	482.2	6.09	3.52	237	22.22	
16:15	150	4.62	72.51	537.4	7.1	1.51	23.21	22.23	
16:20	150	4.6	71.15	539.3	7.33	1.23	23.05	22.23	
16:25	150	4.61	71.94	538.8	7.16	1.15	23.1	22.23	
16:30	150	4.59	71.65	537.6	7.28	1.06	23.05	22.23	

SAMPLE	
TIME: 16:30	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML): 5100	TIME POST SAMPLE: 16:40
WATER LEVEL POST-SAMPLE: 22.23	FLOW RATE POST-SAMPLE (ML/MIN): 150
TURBIDITY POST-SAMPLE (NTU): 0.64	COLOR POST SAMPLE: Clear
ODOR POST-SAMPLE: None	STABILITY REACHED: Y
SAMPLE COMMENTS:	

SAMPLE QA					
TYPE	**ID**	**TIME**	**TYPE**	**ID**	**TIME**
FIELD BLANK			FIELD DUPLICATE		
EQUIPMENT BLANK			FILTER BLANK		
EQUIPMENT BLANK			FILTER BLANK LOT:		
TUBING BLANK LOT:			MS/MSD	NO	

BOTTLES				
BOTTLE LOT NUMBER	**BOTTLE COUNT**	**SIZE (ML)**	**TYPE**	**PRESERVATIVE**
0102401I	1	250	HDPE	HNO3
	1	250	HDPE	UNPRESERVED
	1	125	HDPE	UNPRESERVED

WATER SAMPLE LOG: MW-LF-12-2023Q4
WATEREE GENERATING STATION

PREPARED BY	CHECKED BY
BY: David Szynal DATE: 2023-10-10	BY: Jason Yonts DATE: 2023-10-11

WELL ID: WAT-MW-LF-12		
TASK CODE: WAT-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 32.05	TOTAL DEPTH TO WATER (FT): 43.74	TOTAL WATER COLUMN (FT): 11.69
TOP OF SCREEN (FT): 30.9	BOTTOM OF SCREEN (FT): 40.9	METHOD OF PURGING: Low Flow
PUMP TYPE: Bladder	PUMP START TIME: 14:20	PUMP INTAKE DEPTH/SAMPLE DEPTH (FT): 38

PURGING	
METHOD: Low Flow	MEASURE POINT: Top of Casing
PUMP TYPE: Bladder	PUMP INTAKE/SAMPLE DEPTH (FT) : 38
PURGE AND STABILIZATION NOTES:	

PURGE MEASURES

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (US/CM)	ORP (MV)	DO (MG/L)	TURDIDITY (NTU)	TEMPERATURE (C)	WATER LEVEL	COMMENTS
14:25		4.34	66.34	178	7.73	27.1	24.24		
14:30		4.38	68.03	180.2	8.11	14.2	24.62		
14:35		4.34	67.44	190.7	7.89	16.3	27.34		
14:40		4.35	66.15	197.9	7.57	16.1	29.3		
14:45		4.36	65.5	193.4	7.38	12	27.8		
14:50		4.31	65.67	202.1	7.32	9.1	27.52		
14:55		4.32	65.95	212.2	7.19	8.6	27.08		
15:00		4.33	65.74	215.1	7.18	8.66	26.91		

SAMPLE	
TIME: 15:00	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML):	TIME POST SAMPLE: 15:20
WATER LEVEL POST-SAMPLE: 32.75	FLOW RATE POST-SAMPLE (ML/MIN):
TURBIDITY POST-SAMPLE (NTU): 8.24	COLOR POST SAMPLE: Clear
ODOR POST-SAMPLE: None	STABILITY REACHED: Y
SAMPLE COMMENTS:	

SAMPLE QA					
TYPE	**ID**	**TIME**	**TYPE**	**ID**	**TIME**
FIELD BLANK			FIELD DUPLICATE		
EQUIPMENT BLANK			FILTER BLANK		
EQUIPMENT BLANK			FILTER BLANK LOT:		
TUBING BLANK LOT:			MS/MSD	NO	

BOTTLES				
BOTTLE LOT NUMBER	**BOTTLE COUNT**	**SIZE (ML)**	**TYPE**	**PRESERVATIVE**
	1	250	HDPE	HNO3
	1	125	HDPE	UNPRESERVED
	1	250	HDPE	UNPRESERVED

WATER SAMPLE LOG: MW-LF-22-2023Q4
WATEREE GENERATING STATION

PREPARED BY	CHECKED BY
BY: Sam Thorsland DATE: 2023-10-10	BY: Jason Yonts DATE: 2023-10-11

WELL ID: WAT-MW-22		
TASK CODE: WAT-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 22.76	TOTAL DEPTH TO WATER (FT): 34.45	TOTAL WATER COLUMN (FT): 11.69
TOP OF SCREEN (FT): 24.45	BOTTOM OF SCREEN (FT): 34.45	METHOD OF PURGING: Low Flow
PUMP TYPE: Peristaltic	PUMP START TIME: 13:43	PUMP INTAKE DEPTH/SAMPLE DEPTH (FT): 29

PURGING	
METHOD: Low Flow	MEASURE POINT: Top of Casing
PUMP TYPE: Peristaltic	PUMP INTAKE/SAMPLE DEPTH (FT) : 29
PURGE AND STABILIZATION NOTES:	

PURGE MEASURES

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (US/CM)	ORP (MV)	DO (MG/L)	TURDIDITY (NTU)	TEMPERATURE (C)	WATER LEVEL	COMMENTS
13:45	150	4.27	83.75	415.8	2.65	11.4	27.09	22.77	
14:00	150	4.25	84.71	561.7	2.8	3.77	25.66	22.77	
14:05	150	4.27	84.77	577.9	2.84	3.24	25.69	22.77	
14:10	150	4.25	84.53	581	2.89	1.27	25.46	22.77	
14:15	150	4.27	84.31	587.2	2.98	0.96	25.51	22.77	

SAMPLE	
TIME: 14:15	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML): 4800	TIME POST SAMPLE: 14:32
WATER LEVEL POST-SAMPLE: 22.77	FLOW RATE POST-SAMPLE (ML/MIN): 150
TURBIDITY POST-SAMPLE (NTU): 0.51	COLOR POST SAMPLE: Clear
ODOR POST-SAMPLE: None	STABILITY REACHED: Y
SAMPLE COMMENTS:	

SAMPLE QA					
TYPE	**ID**	**TIME**	**TYPE**	**ID**	**TIME**
FIELD BLANK			FIELD DUPLICATE		
EQUIPMENT BLANK			FILTER BLANK		
EQUIPMENT BLANK			FILTER BLANK LOT:		
TUBING BLANK LOT:			MS/MSD	YES	

BOTTLES				
BOTTLE LOT NUMBER	**BOTTLE COUNT**	**SIZE (ML)**	**TYPE**	**PRESERVATIVE**
0102401I	2	250	HDPE	HNO3
	2	250	HDPE	UNPRESERVED
	2	125	HDPE	UNPRESERVED

TRC

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	Wateree Station	MODEL:	Aqua Troll 400	SAMPLER:	ST / DS
PROJECT NO.:	416559.0005.0000	SERIAL #:	909268	DATE:	10/10/23

PH CALIBRATION CHECK

pH 7 (LOT #): 22290139 (EXP. DATE): 4/24 PRE-CAL. READING / STANDARD	pH 4 / 10 (LOT #): 24000444 / 22110130 (EXP. DATE): 5/24 / 4/2024 PRE-CAL. READING / STANDARD	CAL. RANGE	TIME
6.62 / 7.0	10 / 10	☒ WITHIN RANGE	1410
7.01 / 7.0	4 / 4	☒ WITHIN RANGE	1412
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): 24002258 (EXP. DATE): 5/24 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
44871 4490	25°C	☒ WITHIN RANGE	1418
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

ORP CALIBRATION CHECK

CAL. READING (LOT #): 24002258 (EXP. DATE): 6/24 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
224 / 228	25°C	☒ WITHIN RANGE	1414
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CALIBRATION READING (mg/L)	CAL. RANGE	TIME
Baro: 756.02 mm/Hg Temp: 29.70 °C Act: 8.48 mg/L Calc: 7.6 mg/L	☒ WITHIN RANGE	1416
	☐ WITHIN RANGE	
	☐ WITHIN RANGE	
	☐ WITHIN RANGE	

TURBIDITY CALIBRATION CHECK

CALIBRATION READING (NTU) (LOT #): n/a (EXP. DATE): n/a PRE-CAL. READING / STANDARD	(LOT #): n/a (EXP. DATE): n/a POST-CAL. READING / STANDARD	CAL. RANGE	TIME
0 / 0	0 / 0	☒ WITHIN RANGE	1426
1 / 1	1 / 1	☒ WITHIN RANGE	1422
10 / 10	10 / 10	☒ WITHIN RANGE	1424
/	/	☐ WITHIN RANGE	

COMMENTS

☒ AUTOCAL SOLUTION (LOT #): 24002258 (EXP. DATE): 5/24

☐ STANDARD SOLUTION (S)

LIST LOT NUMBERS AND EXPIRATION DATES UNDER CALIBRATION CHECK

CALIBRATED PARAMETERS		CALIBRATION RANGES [1]	
☑	pH	pH:	+/- 0.2 S.U.
☑	COND	COND:	+/- 1% OF CAL. STANDARD
☐	ORP	ORP:	+/- 25 mV
☐	D.O.	D.O.:	VARIES
☐	TURB	TURB:	+/- 5% OF CAL. STANDARD
☐	_____	[1] CALIBRATION RANGES ARE SPECIFIC TO THE MODEL OF THE WATER QUALITY METER	
☐	_____		

NOTES

PROBLEMS ENCOUNTERED	CORRECTIVE ACTIONS
none	None

D. L. Ard — 10/10/23
SIGNED — DATE

Quentin Bentley — 10/12/23
CHECKED BY — DATE

TRC

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	Wateree Station	MODEL:	Aqua Troll 400	SAMPLER:	(ST) DS
PROJECT NO.:	416559.0005.0000	SERIAL #:	851425	DATE:	10/10/23

PH CALIBRATION CHECK

pH 7 (LOT #): 22290139 (EXP. DATE): 4/24 PRE-CAL. READING / STANDARD	pH 4 / (10) (LOT #): 22110130 (EXP. DATE): 4/24 PRE-CAL. READING / STANDARD	CAL. RANGE	TIME
7.03 / 7.00	9.99 / 10.00	☐ WITHIN RANGE	0959
/	4.26 / 4.00	☐ WITHIN RANGE	1003
7.02 / 7.00	10.05 / 10.00	☒ WITHIN RANGE	1001
/	4.00 / 4.00	☒ WITHIN RANGE	1005

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): 24000044 (EXP. DATE): 5/24 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
4329.6 / 4490	19.23	☐ WITHIN RANGE	1005
4487.3 / 4490	19.28	☒ WITHIN RANGE	1006
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

ORP CALIBRATION CHECK

CAL. READING (LOT #): 24002258 (EXP. DATE): 6/24 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
234.5 / 228	19.48	☐ WITHIN RANGE	1007
227.9 / 228	19.48	☒ WITHIN RANGE	1008
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CALIBRATION READING (mg/L)	CAL. RANGE	TIME
Baro: 758.00 mmHg Temp: 19.46 °C Act: 9.15 mg/L calc: 9.2 mg/L	☒ WITHIN RANGE	0956
	☐ WITHIN RANGE	
	☐ WITHIN RANGE	
	☐ WITHIN RANGE	

TURBIDITY CALIBRATION CHECK

CALIBRATION READING (NTU) (LOT #): (EXP. DATE): n/a PRE-CAL. READING / STANDARD	(LOT #): (EXP. DATE): n/a POST-CAL. READING / STANDARD	CAL. RANGE	TIME
0.00 / 0.00	0.00 / 0.00	☒ WITHIN RANGE	1016
0.96 / 1.00	0.96 / 1.00	☒ WITHIN RANGE	1016
10.14 / 10.00	10.04 / 10.00	☒ WITHIN RANGE	1017
/	/	☐ WITHIN RANGE	

COMMENTS

☒ AUTOCAL SOLUTION (LOT #): (EXP. DATE):

☐ STANDARD SOLUTION (S)

LIST LOT NUMBERS AND EXPIRATION DATES UNDER CALIBRATION CHECK

CALIBRATED PARAMETERS		CALIBRATION RANGES [1]	
☑	pH	pH:	+/- 0.2 S.U.
☑	COND	COND:	+/- 1% OF CAL. STANDARD
☐	ORP	ORP:	+/- 25 mV
☐	D.O.	D.O.:	VARIES
☐	TURB	TURB:	+/- 5% OF CAL. STANDARD
☐	_____	[1] CALIBRATION RANGES ARE SPECIFIC TO THE MODEL OF THE WATER QUALITY METER	
☐	_____		

NOTES

PROBLEMS ENCOUNTERED	CORRECTIVE ACTIONS
none	none

SIGNED [signature] DATE 10/10/23

CHECKED BY [signature] DATE 10/12/23

GEL Laboratories LLC
a member of The GEL Group INC

November 20, 2023

Kelly Hicks
Dominion Energy Services, Inc.
120 Tredegar Street
Richmond, Virginia 23219

Re: CCR Groundwater Monitoring - Level 3 Package
Work Order: 640998

Dear Kelly Hicks:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on October 12, 2023. This revised data report has been prepared and reviewed in accordance with GEL's standard operating procedures. REV. The client requested revised reports to update the metals list to 200.8 instead of the original request 6020.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1648.

Sincerely,

M Boddiford

Meredith Boddiford
Project Manager

Purchase Order: 50149867
Chain of Custody: 2023101001
Enclosures

Table of Contents

Case Narrative

REV. The client requested revised reports to update the metals list to 200.8 instead of the original request 6020.

Receipt Narrative
for
Dominion Energy (50149867)
SDG: 640998

November 20, 2023

Laboratory Identification:

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

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on October 12, 2023 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. The sample did not hold proper pH. The client was notified via email. *640998006(MW-LF-12-2023Q4)*.

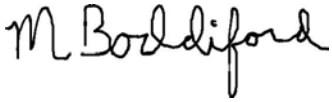
Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
640998001	MW-LF-01D-2023Q4
640998002	MW-LF-07-2023Q4
640998003	MW-LF-08-2023Q4
640998004	MW-LF-10A-2023Q4
640998005	MW-LF-11-2023Q4
640998006	MW-LF-12-2023Q4
640998007	MW-LF-22-2023Q4
640998008	AS-LF-02-2023Q4
640998009	AS-LF-03-2023Q4
640998010	FBLK-WAT-CCR-LF-23401
640998011	MW-BG-74-2023Q4
640998012	DU-WAT-CCR-LF-23401

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry and Metals.



Meredith Boddiford
Project Manager

Chain of Custody and Supporting Documentation

Page: 1 of 2
Project # 416559.0005.0000.2.2
GEL Quote #:
COC Number [1]: 2023101001
PO Number: PO 50149867

GEL Laboratories LLC 640998
gel.com
Chemistry | Radiochemistry | Radiobioassay | Specialty Analytics
Chain of Custody and Analytical Request

GEL Work Order Number: 232262 GEL Project Manager: Meredith Boddiford

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Dominion Energy Phone # 803-258-1528
Project/Site Name: Wateree Station Class 3 Landfill CCR 2023Q4 Fax #
Address: Wateree, South Carolina
Collected By: D. Szynal / S. Thorsland Send Results To: AReed@envstd.com

SDG: 640998 Rev1

Page 5 of 82

Sample ID * For composites - indicate start and stop date/time	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code [2]	Field Filtered [3]	Sample Matrix [4]	Should this sample be considered: Radioactive (If yes, please supply isotopic info.)	Should this sample be considered: (7) Known or possible Hazards	Total number of containers	TDS - SM2540C	Cl, Fl, SO4 - 300.0	Total B, and Ca 6020B	NI	Comments
MW-LF-01D-2023Q4	10/10/23	1055	N	N	GW	N		3	X	X	X		
MW-LF-07-2023Q4	10/10/23	1210	N	N	GW	N		3	X	X	X		See attached work
MW-LF-08-2023Q4	10/10/23	1320	N	N	GW	N		3	X	X	X		order for details
MW-LF-10A-2023Q4	10/10/23	1525	N	N	GW	N		3	X	X	X		
MW-LF-11-2023Q4	10/10/23	1630	N	N	GW	N		3	X	X	X		
MW-LF-12-2023Q4	10/10/23	1500	N	N	GW	N		3	X	X	X		
MW-LF-22-2023Q4	10/10/23	1415	N	N	GW	N		6	X	X	X		
AS-LF-02-2023Q4	10/10/23	1540	N	N	GW	N		3	X	X	X		
AS-LF-03-2023Q4	10/10/23	1720	N	N	GW	N		3	X	X	X		
FBLK-WAT-CCR-LF-23401	10/10/23	1540	FB	N	AQ	N		3	X	X	X		

Sample Analysis Requested [5] (Fill in the number of containers for each test)
<-- Preservative Type (6)

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1		10/11/23	1800		10/11/23	1800
2		10/12/23	0943		10/12/23	943
3						

TAT Requested: Normal: X Rush: Specify:

Fax Results: [ ] Yes [X] No
Select Deliverable: [ ] C of A [ ] QC Summary [ ] level 1 [ ] Level 2 [ ] Level 3 [X] Level 4
Additional Remarks:
For Lab Receiving Use Only: Custody Seal Intact? [ ] Yes [ ] No Cooler Temp: °C

> For sample shipping and delivery details, see Sample Receipt & Review form (SRR.)

Sample Collection Time Zone: [X] Eastern [ ] Pacific [ ] Central [ ] Mountain [ ] Other:

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** = Composite

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, **ML**=Misc Liquid, **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**).

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

7.) **KNOWN OR POSSIBLE HAZARDS**

RCRA Metals
As = Arsenic **Hg**= Mercury
Ba = Barium **Se**= Selenium
Cd = Cadmium **Ag**= Silver
Cr = Chromium **MR**= Misc. RCRA metals
Pb = Lead

Characteristic Hazards
FL = Flammable/Ignitable
CO = Corrosive
RE = Reactive

TSCA Regulated
PCB = Polychlorinated biphenyls

Listed Waste
LW= Listed Waste
(F,K,P and U-listed wastes.)
Waste code(s):

Other
OT= Other / Unknown
(i.e.: High/low pH, asbestos, beryllium, irritants, other misc. health hazards, etc.)
Description:

Please provide any additional details below regarding handling and/or disposal concerns. *(i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)*

Page: 2 of 2
Project # 416559.0005.0000.2.2
GEL Quote #:
COC Number [1]: 2023101002
PO Number: PO 50149867

GEL Laboratories LLC
gel.com
Chemistry | Radiochemistry | Radiobioassay | Specialty Analytics

Chain of Custody and Analytical Request

GEL Work Order Number: 232262 **GEL Project Manager: Meredith Boddiford**

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Dominion Energy Phone # 803-258-1528
Project/Site Name: Wateree Station Class 3 Landfill CCR 2023Q4 Fax #
Address: Wateree, South Carolina
Collected By: D. Szynal / S. Thorsland Send Results To: AReed@envstd.com

Sample Analysis Requested [5] (Fill in the number of containers for each test)

Sample ID (* For composites - indicate start and stop date/time)	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code [2]	Field Filtered [3]	Sample Matrix [4]	Should this sample be considered: Radioactive (If yes, please supply isotopic info.)	Should this sample be considered: (7) Known or possible Hazards	Total number of containers	TDS - SM2540C	Cl, Fl, SO4 - 300.0	Total B, and Ca 6020B	NI	<-- Preservative Type (6)	Comments
MW-BG-74-2023Q4	10/10/23	1705	N	N	GW	N		3	X	X	X			
DUP-WAT-CCR-LF-23401	10/10/23	↓	FD	N	GW	N		3	X	X	X			See attached work order for details
~~FBLK-WAT-CCR-LF-23402~~			~~FB~~	~~N~~	~~AQ~~	~~N~~								

Comments: Note: extra sample is required for sample specific QC

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1	[signature]	10/11/23	1800	[signature]	10/11/23	1800
2	[signature]	10/12/23	0943	Thycosia Tatum	10/12/23	943
3						

TAT Requested: Normal: X Rush: ____ Specify: ____

Fax Results: [ ] Yes [X] No

Select Deliverable: [ ] C of A [ ] QC Summary [ ] level 1 [ ] Level 2 [ ] Level 3 [X] Level 4

Additional Remarks:

For Lab Receiving Use Only: *Custody Seal Intact?* [ ] Yes [ ] No ***Cooler Temp:*** ____ °C

> ***For sample shipping and delivery details, see Sample Receipt & Review form (SRR.)***

Sample Collection Time Zone: [X] Eastern [ ] Pacific [ ] Central [ ] Mountain [ ] Other:

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** = Composite

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, **ML**=Misc Liquid, **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**).

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

7.) **KNOWN OR POSSIBLE HAZARDS**

RCRA Metals
As = Arsenic **Hg**= Mercury
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Cd = Cadmium **Ag**= Silver
Cr = Chromium **MR**= Misc. RCRA metals
Pb = Lead

Characteristic Hazards
FL = Flammable/Ignitable
CO = Corrosive
RE = Reactive

TSCA Regulated
PCB = Polychlorinated biphenyls

Listed Waste
LW= Listed Waste
(F,K,P and U-listed wastes.)
Waste code(s):

Other
OT= Other / Unknown
(i.e.: High/low pH, asbestos, beryllium, irritants, other misc. health hazards, etc.)
Description:

Please provide any additional details below regarding handling and/or disposal concerns. *(i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)*

640998
640960
640966
640949

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: DMNN	**SDG/AR/COC/Work Order:**
Received By: EG	**Date Received:** 10/12/23 943
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services (Courier) Other

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A)Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		✓	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 0 CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
D) Did the client designate samples are hazardous?		✓	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		✓	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: 4
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR6-23 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?			✓	Sample ID's and Containers Affected: MW-LF-12-20230Q4 pH>2 If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?	✓			
13	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials AT Date 10/13/23 Page 1 of 1

GL-CHL-SR-001 Rev 7

Page: 1 of 2
Project # 416559.0005.0000.2.2
GEL Quote #:
COC Number (1): 2023101001 Rev 1
PO Number: PO 50149867

GEL Laboratories LLC 640998
gel.com
Chemistry | Radiochemistry | Radiobioassay | Specialty Analytics
Chain of Custody and Analytical Request

GEL Work Order Number: 232262 GEL Project Manager: Meredith Boddiford

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Dominion Energy Phone # 803-258-1528
Project/Site Name: Wateree Station Class 3 Landfill CCR 2023Q4 Fax #
Address: Wateree, South Carolina
Collected By: D. Szynal / S. Thorsland Send Results To: AReed@envstd.com

SDG: 640998 Page 5 of 69

Sample ID * For composites - indicate start and stop date/time	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive (If yes, please supply isotopic info.)	Should this sample be considered: (7) Known or possible Hazards	Total number of containers	TDS - SM2540C	Cl, Fl, SO4 - 300.0	NI Total B, and Ca 6020 (200.8)	Comments
MW-LF-01D-2023Q4	10/10/23	1055	N	N	GW	N		3	X	X	X	
MW-LF-07-2023Q4	10/10/23	1210	N	N	GW	N		3	X	X	X	See attached work
MW-LF-08-2023Q4	10/10/23	1320	N	N	GW	N		3	X	X	X	order for details
MW-LF-10A-2023Q4	10/10/23	1525	N	N	GW	N		3	X	X	X	
MW-LF-11-2023Q4	10/10/23	1630	N	N	GW	N		3	X	X	X	
MW-LF-12-2023Q4	10/10/23	1500	N	N	GW	N		3	X	X	X	
MW-LF-22-2023Q4	10/10/23	1415	N	N	GW	N		6	X	X	X	
AS-LF-02-2023Q4	10/10/23	1540	N	N	GW	N		3	X	X	X	
AS-LF-03-2023Q4	10/10/23	1720	N	N	GW	N		3	X	X	X	
FBLK-WAT-CCR-LF-23401	10/10/23	1540	FB	N	AQ	N		3	X	X	X	

RM 11-13-23

Sample Analysis Requested (5) (Fill in the number of containers for each test)
<-- Preservative Type (6)

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1		10/11/23	1800		10/11/23	1800
2		10/12/23	0943		10/12/23	943
3						

TAT Requested: Normal: X Rush: Specify:

Fax Results: [ ] Yes [X] No
Select Deliverable: [ ] C of A [ ] QC Summary [ ] level 1 [ ] Level 2 [ ] Level 3 [X] Level 4
Additional Remarks:
For Lab Receiving Use Only: Custody Seal Intact? [ ] Yes [ ] No Cooler Temp: °C

> For sample shipping and delivery details, see Sample Receipt & Review form (SRR.)

Sample Collection Time Zone: [X] Eastern [ ] Pacific [ ] Central [ ] Mountain [ ] Other:

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 = Composite

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, ML=Misc Liquid, 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).

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

7.) KNOWN OR POSSIBLE HAZARDS

RCRA Metals
As = Arsenic Hg= Mercury
Ba = Barium Se= Selenium
Cd = Cadmium Ag= Silver
Cr = Chromium MR= Misc. RCRA metals
Pb = Lead

Characteristic Hazards
FL = Flammable/Ignitable
CO = Corrosive
RE = Reactive

TSCA Regulated
PCB = Polychlorinated biphenyls

Listed Waste
LW= Listed Waste
(F,K,P and U-listed wastes.)
Waste code(s):

Other
OT= Other / Unknown
(i.e.: High/low pH, asbestos, beryllium, irritants, other misc. health hazards, etc.)
Description:

Please provide any additional details below regarding handling and/or disposal concerns. (i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)

Page: 2 of 2
Project # 416559.0005.0000.2.2
GEL Quote #:
COC Number [1]: 2023101002 Rev 1
PO Number: PO 50149867

GEL Laboratories LLC
gel.com
Chemistry | Radiochemistry | Radiobioassay | Specialty Analytics

Chain of Custody and Analytical Request

GEL Work Order Number: 232262 **GEL Project Manager:** Meredith Boddiford

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Dominion Energy Phone # 803-258-1528
Project/Site Name: Wateree Station Class 3 Landfill CCR 2023Q4 Fax #
Address: Wateree, South Carolina
Collected By: D. Szynal / S. Thorsland Send Results To: AReed@envstd.com

SDG: 640998

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Sample ID * For composites - indicate start and stop date/time	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code [2]	Field Filtered [3]	Sample Matrix [4]	Should this sample be considered: Radioactive (If yes, please supply isotopic info.)	Should this sample be considered: (7) Known or possible Hazards	Total number of containers	TDS - SM2540C	Cl, Fl, SO4 - 300.0	NI Total B. and Ca 6020B 200.8	Comments
MW-BG-74-2023Q4	10/10/23	1725	N	N	GW	N		3	X	X	X	
DUP-WAT-CCR-LF-23401	10/10/23	↓	FD	N	GW	N		3	X	X	X	See attached work order for details
~~FBLK-WAT-CCR-LF-23402~~			~~FB~~	~~N~~	~~AQ~~	~~N~~						

Sample Analysis Requested [5] (Fill in the number of containers for each test)
<-- Preservative Type (6)

RM 11-13-23

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1		10/11/23	1800		10/11/23	1800
2		10/12/23	0943	Thycosia Tatum	10/12/23	943
3						

> *For sample shipping and delivery details, see Sample Receipt & Review form (SRR.)*

TAT Requested: Normal: X Rush: ____ Specify: ____

Fax Results: [ ] Yes [X] No

Select Deliverable: [ ] C of A [ ] QC Summary [ ] level 1 [ ] Level 2 [ ] Level 3 [X] Level 4

Additional Remarks:

For Lab Receiving Use Only: *Custody Seal Intact?* [ ] Yes [ ] No *Cooler Temp:* ____ °C

Sample Collection Time Zone: [X] Eastern [ ] Pacific [ ] Central [ ] Mountain [ ] Other:

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** = Composite

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, **ML**=Misc Liquid, **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**).

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

7.) **KNOWN OR POSSIBLE HAZARDS**

RCRA Metals
As = Arsenic **Hg**= Mercury
Ba = Barium **Se**= Selenium
Cd = Cadmium **Ag**= Silver
Cr = Chromium **MR**= Misc. RCRA metals
Pb = Lead

Characteristic Hazards
FL = Flammable/Ignitable
CO = Corrosive
RE = Reactive

TSCA Regulated
PCB = Polychlorinated biphenyls

Listed Waste
LW= Listed Waste
(F,K,P and U-listed wastes.)
Waste code(s):

Other
OT= Other / Unknown
(i.e.: High/low pH, asbestos, beryllium, irritants, other misc. health hazards, etc.)
Description:

Please provide any additional details below regarding handling and/or disposal concerns. *(i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)*

Laboratory Certifications

List of current GEL Certifications as of 20 November 2023

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-00651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	KY90129
Kentucky Wastewater	KY90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2023019
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122024-04
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2023-152
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-23-21
Utah NELAP	SC000122023-38
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
Dominion Energy
SDG #: 640998

Product: **Determination of Metals by ICP-MS**
Analytical Method: SW846 3005A/6020B
Analytical Procedure: GL-MA-E-014 REV# 36
Analytical Batch: 2507963

Product: **Determination of Metals by ICP-MS**
Analytical Method: EPA 200.8 SC_NPDES
Analytical Procedure: GL-MA-E-014 REV# 36
Analytical Batch: 2527562

Preparation Method: SW846 3005A
Preparation Procedure: GL-MA-E-006 REV# 14
Preparation Batch: 2507962

Preparation Method: EPA 200.2
Preparation Procedure: GL-MA-E-016 REV# 18
Preparation Batch: 2527559

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

GEL Sample ID#	Client Sample Identification
640998001	MW-LF-01D-2023Q4
640998002	MW-LF-07-2023Q4
640998003	MW-LF-08-2023Q4
640998004	MW-LF-10A-2023Q4
640998005	MW-LF-11-2023Q4
640998006	MW-LF-12-2023Q4
640998007	MW-LF-22-2023Q4
640998008	AS-LF-02-2023Q4
640998009	AS-LF-03-2023Q4
640998010	FBLK-WAT-CCR-LF-23401
640998011	MW-BG-74-2023Q4
640998012	DU-WAT-CCR-LF-23401
1205545300	Method Blank (MB)**ICP-MS**
1205578281	Method Blank (MB)**ICP-MS**
1205545301	Laboratory Control Sample (LCS)
1205578282	Laboratory Control Sample (LCS)
1205545304	640998011(MW-BG-74-2023Q4L) Serial Dilution (SD)
1205578285	640998007(MW-LF-22-2023Q4L) Serial Dilution (SD)
1205578288	640998009(AS-LF-03-2023Q4L) Serial Dilution (SD)
1205545302	640998011(MW-BG-74-2023Q4D) Sample Duplicate (DUP)
1205578283	640998007(MW-LF-22-2023Q4D) Sample Duplicate (DUP)
1205578286	640998009(AS-LF-03-2023Q4D) Sample Duplicate (DUP)
1205545303	640998011(MW-BG-74-2023Q4S) Matrix Spike (MS)
1205578284	640998007(MW-LF-22-2023Q4S) Matrix Spike (MS)

1205578287 640998009(AS-LF-03-2023Q4S) Matrix Spike (MS)

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

Data Summary:

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

Calibration Information

ICSA/ICSAB Statement
For the ICP-MS analysis, the ICSA solution contains analyte concentrations which are verified trace impurities indigenous to the purchased standard.

Miscellaneous Information

Additional Comments
All method-driven specifications are followed for these analyses except where client-specific SOW requirements are required to be met.

Certification Statement

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

GEL LABORATORIES LLC

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

Qualifier Definition Report
for

DMNN001 Dominion Energy (50149867)

Client SDG: 640998 GEL Work Order: 640998

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
B Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

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

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

Signature:  **Name: Alan Stanley**

Date: 23 OCT 2023 **Title: Analyst II/Team Leader**

Sample Data Summary

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 640998 **CONTRACT:** DMNN00102 **METHOD TYPE:** EPA

SAMPLE ID: 640998001 **LEVEL:** Low **DATE COLLECTED:** 10-OCT-23

CLIENT ID: MW-LF-01D-2023Q4 **%SOLIDS:** 0 **DATE RECEIVED:** 12-OCT-23

MATRIX: GW **BASIS:** As Received

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	5.26	ug/L	J	4.00	15.0	15.0	1	MS	PRB	11/18/23 16:16	231118-2	2527562
7440-70-2	Calcium	676	ug/L		30.0	100	100	1	MS	PRB	11/18/23 16:16	231118-2	2527562

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2527562	2527559	EPA 200.2	50	mL	50	mL	11/17/23	SD

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 640998 **CONTRACT:** DMNN00102 **METHOD TYPE:** EPA

SAMPLE ID: 640998002 **LEVEL:** Low **DATE COLLECTED:** 10-OCT-23

CLIENT ID: MW-LF-07-2023Q4 **%SOLIDS:** 0 **DATE RECEIVED:** 12-OCT-23

MATRIX: GW **BASIS:** As Received

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	7.05	ug/L	J	4.00	15.0	15.0	1	MS	PRB	11/18/23 16:20	231118-2	2527562
7440-70-2	Calcium	784	ug/L		30.0	100	100	1	MS	PRB	11/18/23 16:20	231118-2	2527562

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2527562	2527559	EPA 200.2	50	mL	50	mL	11/17/23	SD

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 640998 **CONTRACT:** DMNN00102 **METHOD TYPE:** EPA

SAMPLE ID: 640998003 **LEVEL:** Low **DATE COLLECTED:** 10-OCT-23

CLIENT ID: MW-LF-08-2023Q4 **%SOLIDS:** 0 **DATE RECEIVED:** 12-OCT-23

MATRIX: GW **BASIS:** As Received

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	5.75	ug/L	J	4.00	15.0	15.0	1	MS	PRB	11/18/23 16:23	231118-2	2527562
7440-70-2	Calcium	849	ug/L		30.0	100	100	1	MS	PRB	11/18/23 16:23	231118-2	2527562

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2527562	2527559	EPA 200.2	50	mL	50	mL	11/17/23	SD

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 640998 **CONTRACT:** DMNN00102 **METHOD TYPE:** EPA

SAMPLE ID: 640998004 **LEVEL:** Low **DATE COLLECTED:** 10-OCT-23

CLIENT ID: MW-LF-10A-2023Q4 **%SOLIDS:** 0 **DATE RECEIVED:** 12-OCT-23

MATRIX: GW **BASIS:** As Received

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	6.90	ug/L	J	4.00	15.0	15.0	1	MS	PRB	11/18/23 16:27	231118-2	2527562
7440-70-2	Calcium	472	ug/L		30.0	100	100	1	MS	PRB	11/18/23 16:27	231118-2	2527562

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2527562	2527559	EPA 200.2	50	mL	50	mL	11/17/23	SD

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 640998 **CONTRACT:** DMNN00102 **METHOD TYPE:** EPA

SAMPLE ID: 640998005 **LEVEL:** Low **DATE COLLECTED:** 10-OCT-23

CLIENT ID: MW-LF-11-2023Q4 **%SOLIDS:** 0 **DATE RECEIVED:** 12-OCT-23

MATRIX: GW **BASIS:** As Received

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	6.87	ug/L	J	4.00	15.0	15.0	1	MS	PRB	11/18/23 16:30	231118-2	2527562
7440-70-2	Calcium	445	ug/L		30.0	100	100	1	MS	PRB	11/18/23 16:30	231118-2	2527562

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2527562	2527559	EPA 200.2	50	mL	50	mL	11/17/23	SD

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 640998 **CONTRACT:** DMNN00102 **METHOD TYPE:** EPA

SAMPLE ID: 640998006 **LEVEL:** Low **DATE COLLECTED:** 10-OCT-23

CLIENT ID: MW-LF-12-2023Q4 **%SOLIDS:** 0 **DATE RECEIVED:** 12-OCT-23

MATRIX: GW **BASIS:** As Received

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	6.65	ug/L	J	4.00	15.0	15.0	1	MS	PRB	11/18/23 16:34	231118-2	2527562
7440-70-2	Calcium	1820	ug/L		30.0	100	100	1	MS	PRB	11/18/23 16:34	231118-2	2527562

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2527562	2527559	EPA 200.2	50	mL	50	mL	11/17/23	SD

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 640998 **CONTRACT:** DMNN00102 **METHOD TYPE:** EPA

SAMPLE ID: 640998007 **LEVEL:** Low **DATE COLLECTED:** 10-OCT-23

CLIENT ID: MW-LF-22-2023Q4 **%SOLIDS:** 0 **DATE RECEIVED:** 12-OCT-23

MATRIX: GW **BASIS:** As Received

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	9.97	ug/L	J	4.00	15.0	15.0	1	MS	PRB	11/18/23 16:45	231118-2	2527562
7440-70-2	Calcium	2170	ug/L		30.0	100	100	1	MS	PRB	11/18/23 16:45	231118-2	2527562

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2527562	2527559	EPA 200.2	50	mL	50	mL	11/17/23	SD

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 640998 **CONTRACT:** DMNN00102 **METHOD TYPE:** EPA

SAMPLE ID: 640998008 **LEVEL:** Low **DATE COLLECTED:** 10-OCT-23

CLIENT ID: AS-LF-02-2023Q4 **%SOLIDS:** 0 **DATE RECEIVED:** 12-OCT-23

MATRIX: GW **BASIS:** As Received

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	8.72	ug/L	J	4.00	15.0	15.0	1	MS	PRB	11/18/23 17:09	231118-2	2527562
7440-70-2	Calcium	891	ug/L		30.0	100	100	1	MS	PRB	11/18/23 17:09	231118-2	2527562

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2527562	2527559	EPA 200.2	50	mL	50	mL	11/17/23	SD

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 640998 **CONTRACT:** DMNN00102 **METHOD TYPE:** EPA

SAMPLE ID: 640998009 **LEVEL:** Low **DATE COLLECTED:** 10-OCT-23

CLIENT ID: AS-LF-03-2023Q4 **%SOLIDS:** 0 **DATE RECEIVED:** 12-OCT-23

MATRIX: GW **BASIS:** As Received

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	6.62	ug/L	J	4.00	15.0	15.0	1	MS	PRB	11/18/23 17:13	231118-2	2527562
7440-70-2	Calcium	853	ug/L		30.0	100	100	1	MS	PRB	11/18/23 17:13	231118-2	2527562

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2527562	2527559	EPA 200.2	50	mL	50	mL	11/17/23	SD

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 640998 **CONTRACT:** DMNN00102 **METHOD TYPE:** EPA

SAMPLE ID: 640998010 **LEVEL:** Low **DATE COLLECTED:** 10-OCT-23

CLIENT ID: FBLK-WAT-CCR-LF-2340 **%SOLIDS:** 0 **DATE RECEIVED:** 12-OCT-23

MATRIX: AQ **BASIS:** As Received

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	4.00	ug/L	U	4.00	15.0	15.0	1	MS	PRB	11/18/23 17:37	231118-2	2527562
7440-70-2	Calcium	30.0	ug/L	U	30.0	100	100	1	MS	PRB	11/18/23 17:37	231118-2	2527562

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2527562	2527559	EPA 200.2	50	mL	50	mL	11/17/23	SD

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 640998 **CONTRACT:** DMNN00102 **METHOD TYPE:** EPA

SAMPLE ID: 640998011 **LEVEL:** Low **DATE COLLECTED:** 10-OCT-23

CLIENT ID: MW-BG-74-2023Q4 **%SOLIDS:** 0 **DATE RECEIVED:** 12-OCT-23

MATRIX: GW **BASIS:** As Received

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	6.50	ug/L	J	4.00	15.0	15.0	1	MS	PRB	11/18/23 17:41	231118-2	2527562
7440-70-2	Calcium	1760	ug/L		30.0	100	100	1	MS	PRB	11/18/23 17:41	231118-2	2527562

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 640998 **CONTRACT:** DMNN00102 **METHOD TYPE:** SW846

SAMPLE ID: 640998011 **LEVEL:** Low **DATE COLLECTED:** 10-OCT-23

CLIENT ID: MW-BG-74-2023Q4 **%SOLIDS:** 0 **DATE RECEIVED:** 12-OCT-23

MATRIX: GW **BASIS:** As Received

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	8.73	ug/L	J	5.20	15.0	15.0	1	MS	PRB	10/23/23 00:05	231022-1	2507963
7440-70-2	Calcium	1730	ug/L		80.0	200	200	1	MS	PRB	10/23/23 00:05	231022-1	2507963

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2527562	2527559	EPA 200.2	50	mL	50	mL	11/17/23	SD
2507963	2507962	SW846 3005A	50	mL	50	mL	10/13/23	JD2

***Analytical Methods:**

MS **SW846 3005A/6020B**
MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 640998 **CONTRACT:** DMNN00102 **METHOD TYPE:** EPA

SAMPLE ID: 640998012 **LEVEL:** Low **DATE COLLECTED:** 10-OCT-23

CLIENT ID: DU-WAT-CCR-LF-23401 **%SOLIDS:** 0 **DATE RECEIVED:** 12-OCT-23

MATRIX: GW **BASIS:** As Received

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	6.32	ug/L	J	4.00	15.0	15.0	1	MS	PRB	11/18/23 17:44	231118-2	2527562
7440-70-2	Calcium	765	ug/L		30.0	100	100	1	MS	PRB	11/18/23 17:44	231118-2	2527562

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 640998 **CONTRACT:** DMNN00102 **METHOD TYPE:** SW846

SAMPLE ID: 640998012 **LEVEL:** Low **DATE COLLECTED:** 10-OCT-23

CLIENT ID: DU-WAT-CCR-LF-23401 **%SOLIDS:** 0 **DATE RECEIVED:** 12-OCT-23

MATRIX: GW **BASIS:** As Received

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	10.2	ug/L	J	5.20	15.0	15.0	1	MS	PRB	10/23/23 00:29	231022-1	2507963
7440-70-2	Calcium	752	ug/L		80.0	200	200	1	MS	PRB	10/23/23 00:29	231022-1	2507963

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2527562	2527559	EPA 200.2	50	mL	50	mL	11/17/23	SD
2507963	2507962	SW846 3005A	50	mL	50	mL	10/13/23	JD2

***Analytical Methods:**

MS **SW846 3005A/6020B**
MS **EPA 200.8 SC_NPDES**

Quality Control Summary

METALS
-2a-
Initial and Continuing Calibration Verification

SDG No: 640998

Contract: DMNN00102 **Lab Code:** GEL

Instrument ID: ICPMS15

Sample ID	*Analyte*	*Result*	*Units*	*True Value*	*Units*	*% Recovery*	*Acceptance Window (%R)*	*M**	*Analysis Date/Time*	*Run Number*
ICV01										
	Boron	101	ug/L	100	ug/L	101.3	90.0 - 110.0	MS	22-OCT-23 23:25	231022-1
	Calcium	5150	ug/L	5000	ug/L	102.9	90.0 - 110.0	MS	22-OCT-23 23:25	231022-1
	Boron	98.5	ug/L	100	ug/L	98.5	90.0 - 110.0	MS	18-NOV-23 14:09	231118-2
	Calcium	5140	ug/L	5000	ug/L	102.8	90.0 - 110.0	MS	18-NOV-23 14:09	231118-2
CCV01										
	Boron	98.7	ug/L	100	ug/L	98.7	90.0 - 110.0	MS	22-OCT-23 23:42	231022-1
	Calcium	5080	ug/L	5000	ug/L	101.6	90.0 - 110.0	MS	22-OCT-23 23:42	231022-1
	Boron	98.5	ug/L	100	ug/L	98.5	90.0 - 110.0	MS	18-NOV-23 14:27	231118-2
	Calcium	5080	ug/L	5000	ug/L	101.6	90.0 - 110.0	MS	18-NOV-23 14:27	231118-2
CCV02										
	Boron	96.9	ug/L	100	ug/L	96.9	90.0 - 110.0	MS	22-OCT-23 23:52	231022-1
	Calcium	5110	ug/L	5000	ug/L	102.2	90.0 - 110.0	MS	22-OCT-23 23:52	231022-1
	Boron	99.6	ug/L	100	ug/L	99.6	90.0 - 110.0	MS	18-NOV-23 14:37	231118-2
	Calcium	5030	ug/L	5000	ug/L	100.5	90.0 - 110.0	MS	18-NOV-23 14:37	231118-2
CCV03										
	Boron	101	ug/L	100	ug/L	101.2	90.0 - 110.0	MS	23-OCT-23 00:22	231022-1
	Calcium	5030	ug/L	5000	ug/L	100.7	90.0 - 110.0	MS	23-OCT-23 00:22	231022-1
	Boron	98.2	ug/L	100	ug/L	98.2	90.0 - 110.0	MS	18-NOV-23 16:02	231118-2
	Calcium	5020	ug/L	5000	ug/L	100.4	90.0 - 110.0	MS	18-NOV-23 16:02	231118-2
CCV04										
	Boron	95.5	ug/L	100	ug/L	95.5	90.0 - 110.0	MS	23-OCT-23 00:42	231022-1
	Calcium	5030	ug/L	5000	ug/L	100.6	90.0 - 110.0	MS	23-OCT-23 00:42	231022-1
	Boron	96.4	ug/L	100	ug/L	96.4	90.0 - 110.0	MS	18-NOV-23 16:37	231118-2
	Calcium	5010	ug/L	5000	ug/L	100.2	90.0 - 110.0	MS	18-NOV-23 16:37	231118-2
CCV05										
	Boron	97.8	ug/L	100	ug/L	97.8	90.0 - 110.0	MS	18-NOV-23 17:02	231118-2
	Calcium	4980	ug/L	5000	ug/L	99.6	90.0 - 110.0	MS	18-NOV-23 17:02	231118-2
CCV06										
	Boron	99.3	ug/L	100	ug/L	99.3	90.0 - 110.0	MS	18-NOV-23 17:30	231118-2
	Calcium	4990	ug/L	5000	ug/L	99.8	90.0 - 110.0	MS	18-NOV-23 17:30	231118-2

METALS
-2a-
Initial and Continuing Calibration Verification

SDG No: 640998

Contract: DMNN00102 **Lab Code:** GEL

Instrument ID: ICPMS15

Sample ID	*Analyte*	*Result*	*Units*	*True Value*	*Units*	*% Recovery*	*Acceptance Window (%R)*	*M**	*Analysis Date/Time*	*Run Number*
CCV07										
	Boron	95.8	ug/L	100	ug/L	95.8	90.0 - 110.0	MS	18-NOV-23 17:59	231118-2
	Calcium	5080	ug/L	5000	ug/L	101.5	90.0 - 110.0	MS	18-NOV-23 17:59	231118-2

***Analytical Methods:**

MS EPA 200.8 SC_NPDES
MS SW846 3005A/6020B

METALS
-2b-
CRDL Standard for ICP & ICPMS

SDG No: 640998

Contract: DMNN00102 **Lab Code:** GEL

Instrument ID: ICPMS15

Sample ID	*Analyte*	*Result*	*Units*	*True Value*	*Units*	*% Recovery*	*Advisory Limits (%R)*	*M**	*Analysis Date/Time*	*Run Number*
CRDL01										
	Boron	15.9	ug/L	15	ug/L	106.2	80.0 - 120.0	MS	22-OCT-23 23:32	231022-1
	Calcium	219	ug/L	200	ug/L	109.3	80.0 - 120.0	MS	22-OCT-23 23:32	231022-1
	Boron	15.4	ug/L	15	ug/L	102.4	70.0 - 130.0	MS	18-NOV-23 14:16	231118-2
	Calcium	236	ug/L	200	ug/L	118.1	70.0 - 130.0	MS	18-NOV-23 14:16	231118-2
CRDL02										
	Calcium	211	ug/L	200	ug/L	105.4	80.0 - 120.0	MS	23-OCT-23 00:32	231022-1
	Boron	15.5	ug/L	15	ug/L	103.4	80.0 - 120.0	MS	23-OCT-23 00:32	231022-1
	Boron	15.3	ug/L	15	ug/L	102.2	70.0 - 130.0	MS	18-NOV-23 15:52	231118-2
	Calcium	220	ug/L	200	ug/L	110.1	70.0 - 130.0	MS	18-NOV-23 15:52	231118-2
CRDL03										
	Calcium	228	ug/L	200	ug/L	114	70.0 - 130.0	MS	18-NOV-23 17:48	231118-2
	Boron	14.7	ug/L	15	ug/L	98.3	70.0 - 130.0	MS	18-NOV-23 17:48	231118-2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**
MS **SW846 3005A/6020B**

Metals
-3a-
Initial and Continuing Calibration Blank Summary

SDG No.: 640998

Contract: DMNN00102

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
ICB01										
	Boron	5.2	+/-7.5	U	5.2	15.0	LIQ	MS	22-OCT-23 23:28	231022-1
	Calcium	80.0	+/-100	U	80.0	200	LIQ	MS	22-OCT-23 23:28	231022-1
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	18-NOV-23 14:13	231118-2
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	18-NOV-23 14:13	231118-2
CCB01										
	Boron	5.2	+/-7.5	U	5.2	15.0	LIQ	MS	22-OCT-23 23:45	231022-1
	Calcium	80.0	+/-100	U	80.0	200	LIQ	MS	22-OCT-23 23:45	231022-1
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	18-NOV-23 14:30	231118-2
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	18-NOV-23 14:30	231118-2
CCB02										
	Boron	5.2	+/-7.5	U	5.2	15.0	LIQ	MS	22-OCT-23 23:55	231022-1
	Calcium	80.0	+/-100	U	80.0	200	LIQ	MS	22-OCT-23 23:55	231022-1
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	18-NOV-23 14:41	231118-2
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	18-NOV-23 14:41	231118-2
CCB03										
	Boron	5.2	+/-7.5	U	5.2	15.0	LIQ	MS	23-OCT-23 00:25	231022-1
	Calcium	80.0	+/-100	U	80.0	200	LIQ	MS	23-OCT-23 00:25	231022-1
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	18-NOV-23 16:06	231118-2
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	18-NOV-23 16:06	231118-2
CCB04										
	Boron	5.2	+/-7.5	U	5.2	15.0	LIQ	MS	23-OCT-23 00:46	231022-1
	Calcium	80.0	+/-100	U	80.0	200	LIQ	MS	23-OCT-23 00:46	231022-1
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	18-NOV-23 16:41	231118-2
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	18-NOV-23 16:41	231118-2
CCB05										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	18-NOV-23 17:06	231118-2
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	18-NOV-23 17:06	231118-2
CCB06										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	18-NOV-23 17:34	231118-2
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	18-NOV-23 17:34	231118-2
CCB07										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	18-NOV-23 18:02	231118-2

EPA

Metals
-3a-
Initial and Continuing Calibration Blank Summary

SDG No.: 640998

Contract: DMNN00102

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	18-NOV-23 18:02	231118-2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**
MS **SW846 3005A/6020B**

EPA

METALS
-3b-
PREPARATION BLANK SUMMARY

SDG NO. 640998
Contract: DMNN00102
Matrix: GW

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1205545300								
	Boron	5.20	ug/L	+/-7.5	U	MS	5.20	15.0
	Calcium	80.0	ug/L	+/-100	U	MS	80.0	200
1205578281								
	Boron	4.00	ug/L	+/-7.5	U	MS	4.00	15.0
	Calcium	30.0	ug/L	+/-50	U	MS	30.0	100

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**
MS **SW846 3005A/6020B**

METALS
-4-
Interference Check Sample

SDG No: 640998

Contract: DMNN00102 **Lab Code:** GEL

Instrument: ICPMS15

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	Analysis Date/Time	Run Number
ICSA01									
	Calcium	94100	ug/L	100000	ug/L	94.2	80.0 - 120.0	22-OCT-23 23:35	231022-1
	Boron	2.51	ug/L					22-OCT-23 23:35	231022-1
ICSAB01									
	Boron	20.5	ug/L	20	ug/L	103	80.0 - 120.0	22-OCT-23 23:38	231022-1
	Calcium	94500	ug/L	100000	ug/L	94.5	80.0 - 120.0	22-OCT-23 23:38	231022-1
ICSA02									
	Boron	2.55	ug/L					23-OCT-23 00:36	231022-1
	Calcium	94000	ug/L	100000	ug/L	94	80.0 - 120.0	23-OCT-23 00:36	231022-1
ICSAB02									
	Boron	19.7	ug/L	20	ug/L	98.6	80.0 - 120.0	23-OCT-23 00:39	231022-1
	Calcium	93800	ug/L	100000	ug/L	93.8	80.0 - 120.0	23-OCT-23 00:39	231022-1

METALS
-4-
Interference Check Sample

SDG No: 640998

Contract: DMNN00102 **Lab Code:** GEL

Instrument: ICPMS15

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	Analysis Date/Time	Run Number
ICSA01									
	Boron	2.81	ug/L					18-NOV-23 14:20	231118-2
	Calcium	96800	ug/L	100000	ug/L	96.8	80.0 - 120.0	18-NOV-23 14:20	231118-2
ICSAB01									
	Boron	19.7	ug/L	20	ug/L	98.6	80.0 - 120.0	18-NOV-23 14:23	231118-2
	Calcium	96100	ug/L	100000	ug/L	96.1	80.0 - 120.0	18-NOV-23 14:23	231118-2
ICSA02									
	Boron	2.07	ug/L					18-NOV-23 15:55	231118-2
	Calcium	96300	ug/L	100000	ug/L	96.3	80.0 - 120.0	18-NOV-23 15:55	231118-2
ICSAB02									
	Boron	20.2	ug/L	20	ug/L	101	80.0 - 120.0	18-NOV-23 15:59	231118-2
	Calcium	97600	ug/L	100000	ug/L	97.6	80.0 - 120.0	18-NOV-23 15:59	231118-2
ICSA03									
	Boron	1.76	ug/L					18-NOV-23 17:51	231118-2
	Calcium	94400	ug/L	100000	ug/L	94.5	80.0 - 120.0	18-NOV-23 17:51	231118-2
ICSAB03									
	Boron	20.0	ug/L	20	ug/L	100	80.0 - 120.0	18-NOV-23 17:55	231118-2
	Calcium	95700	ug/L	100000	ug/L	95.7	80.0 - 120.0	18-NOV-23 17:55	231118-2

METALS
-5a-

Matrix Spike Summary

SDG NO. 640998 **Client ID:** MW-LF-22-2023Q4S

Contract: DMNN00102 **Level:** Low

Matrix: GROUND WATER **% Solids:**

Sample ID: 640998007 **Spike ID:** 1205545298

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Boron	ug/L	75-125	126		11.6	B	100	114		MS
Calcium	ug/L	75-125	4030		2180		2000	92.1		MS

***Analytical Methods:**

MS **SW846 3005A/6020B**

METALS
-5a-

Matrix Spike Summary

SDG NO. 640998 **Client ID:** MW-BG-74-2023Q4S

Contract: DMNN00102 **Level:** Low

Matrix: GROUND WATER **% Solids:**

Sample ID: 640998011 **Spike ID:** 1205545303

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Boron	ug/L	75-125	129		8.73	B	100	120		MS
Calcium	ug/L	75-125	3810		1730		2000	104		MS

***Analytical Methods:**

MS **SW846 3005A/6020B**

METALS
-5a-

Matrix Spike Summary

SDG NO. 640998 **Client ID:** MW-LF-22-2023Q4S

Contract: DMNN00102 **Level:** Low

Matrix: GROUND WATER **% Solids:**

Sample ID: 640998007 **Spike ID:** 1205578284

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Boron	ug/L	75-125	106		9.97	B	100	96.1		MS
Calcium	ug/L	75-125	4190		2170		2000	101		MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-5a-

Matrix Spike Summary

SDG NO. 640998 **Client ID:** AS-LF-03-2023Q4S

Contract: DMNN00102 **Level:** Low

Matrix: GROUND WATER **% Solids:**

Sample ID: 640998009 **Spike ID:** 1205578287

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Boron	ug/L	75-125	104		6.62	B	100	97.6		MS
Calcium	ug/L	75-125	2880		853		2000	101		MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

Metals
-6-
Duplicate Sample Summary

SDG No.: 640998 **Lab Code:** GEL

Contract: DMNN00102 **Client ID:** MW-LF-22-2023Q4D

Matrix: GROUND WATER **Level:** Low

Sample ID: 640998007 **Duplicate ID:** 1205545297 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Boron	ug/L	+/-30	11.6	B	10.3	B	11.6		MS
Calcium	ug/L	+/-20%	2180		2160		1.27		MS

***Analytical Methods:**
MS SW846 3005A/6020B

Metals
-6-
Duplicate Sample Summary

SDG No.: 640998 **Lab Code:** GEL

Contract: DMNN00102 **Client ID:** MW-BG-74-2023Q4D

Matrix: GROUND WATER **Level:** Low

Sample ID: 640998011 **Duplicate ID:** 1205545302 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Boron	ug/L	+/-30	8.73	B	9.27	B	5.97		MS
Calcium	ug/L	+/-20%	1730		1780		2.82		MS

***Analytical Methods:**
MS SW846 3005A/6020B

Metals
-6-
Duplicate Sample Summary

SDG No.: 640998 **Lab Code:** GEL

Contract: DMNN00102 **Client ID:** MW-LF-22-2023Q4D

Matrix: GROUND WATER **Level:** Low

Sample ID: 640998007 **Duplicate ID:** 1205578283 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Boron	ug/L	+/-30	9.97	B	10.5	B	5.05		MS
Calcium	ug/L	+/-20%	2170		2200		1.29		MS

***Analytical Methods:**
MS EPA 200.8 SC_NPDES

Metals
-6-
Duplicate Sample Summary

SDG No.: 640998 **Lab Code:** GEL

Contract: DMNN00102 **Client ID:** AS-LF-03-2023Q4D

Matrix: GROUND WATER **Level:** Low

Sample ID: 640998009 **Duplicate ID:** 1205578286 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Boron	ug/L	+/-30	6.62	B	6.38	B	3.74		MS
Calcium	ug/L	+/-20%	853		847		.796		MS

***Analytical Methods:**
MS EPA 200.8 SC_NPDES

METALS
-7-
Laboratory Control Sample Summary

SDG NO. 640998

Contract: DMNN00102

Aqueous LCS Source: Enviromental Express **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1205545296								
	Boron	ug/L	100	115		115	80-120	MS
	Calcium	ug/L	2000	2100		105	80-120	MS

***Analytical Methods:**

MS **SW846 3005A/6020B**

METALS
-7-
Laboratory Control Sample Summary

SDG NO. 640998

Contract: DMNN00102

Aqueous LCS Source: Enviromental Express **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1205545301								
	Boron	ug/L	100	113		113	80-120	MS
	Calcium	ug/L	2000	2020		101	80-120	MS

***Analytical Methods:**

MS **SW846 3005A/6020B**

METALS
-7-
Laboratory Control Sample Summary

SDG NO. 640998

Contract: DMNN00102

Aqueous LCS Source: Enviromental Express **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1205578282								
	Boron	ug/L	100	95.4		95.4	85-115	MS
	Calcium	ug/L	2000	1990		99.7	85-115	MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-9-
Serial Dilution Sample Summary

SDG NO. 640998 **Client ID:** MW-LF-22-2023Q4L

Contract: DMNN00102

Matrix: LIQUID **Level:** Low

Sample ID: 640998007 **Serial Dilution ID:** 1205545299

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Boron	11.6	B	26	U	83.849			MS
Calcium	2180		2240		2.635			MS

***Analytical Methods:**

MS **SW846 3005A/6020B**

METALS
-9-
Serial Dilution Sample Summary

SDG NO. 640998 **Client ID:** MW-BG-74-2023Q4L

Contract: DMNN00102

Matrix: LIQUID **Level:** Low

Sample ID: 640998011 **Serial Dilution ID:** 1205545304

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Boron	8.73	B	26	U	4.72			MS
Calcium	1730		1730		.00393			MS

***Analytical Methods:**

MS **SW846 3005A/6020B**

METALS
-9-
Serial Dilution Sample Summary

SDG NO. 640998 **Client ID:** MW-LF-22-2023Q4L

Contract: DMNN00102

Matrix: LIQUID **Level:** Low

Sample ID: 640998007 **Serial Dilution ID:** 1205578285

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Boron	9.97	B	20	U	12.415			MS
Calcium	2170		2290		5.466			MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-9-
Serial Dilution Sample Summary

SDG NO. 640998 **Client ID:** AS-LF-03-2023Q4L

Contract: DMNN00102

Matrix: LIQUID **Level:** Low

Sample ID: 640998009 **Serial Dilution ID:** 1205578288

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Boron	6.62	B	20	U	3.141			MS
Calcium	853		861		.918			MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-13-
SAMPLE PREPARATION SUMMARY

SDG No: 640998 **Method Type:** MS

Contract: DMNN00102 **Lab Code:** GEL

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size	Final Sample Volume	Percent Solids
Batch Number 2507962							
1205545300	MB for batch 2507962	MB	G	13-OCT-23	50mL	50mL	
1205545301	LCS for batch 2507962	LCS	G	13-OCT-23	50mL	50mL	
1205545303	MW-BG-74-2023Q4S	MS	G	13-OCT-23	50mL	50mL	
1205545302	MW-BG-74-2023Q4D	DUP	G	13-OCT-23	50mL	50mL	
640998011	MW-BG-74-2023Q4	SAMPLE	G	13-OCT-23	50mL	50mL	
640998012	DU-WAT-CCR-LF-23401	SAMPLE	G	13-OCT-23	50mL	50mL	
Batch Number 2527559							
1205578281	MB for batch 2527562	MB	G	17-NOV-23	50mL	50mL	
1205578282	LCS for batch 2527562	LCS	G	17-NOV-23	50mL	50mL	
1205578284	MW-LF-22-2023Q4S	MS	G	17-NOV-23	50mL	50mL	
1205578287	AS-LF-03-2023Q4S	MS	G	17-NOV-23	50mL	50mL	
1205578283	MW-LF-22-2023Q4D	DUP	G	17-NOV-23	50mL	50mL	
1205578286	AS-LF-03-2023Q4D	DUP	G	17-NOV-23	50mL	50mL	
640998001	MW-LF-01D-2023Q4	SAMPLE	G	17-NOV-23	50mL	50mL	
640998002	MW-LF-07-2023Q4	SAMPLE	G	17-NOV-23	50mL	50mL	
640998003	MW-LF-08-2023Q4	SAMPLE	G	17-NOV-23	50mL	50mL	
640998004	MW-LF-10A-2023Q4	SAMPLE	G	17-NOV-23	50mL	50mL	
640998005	MW-LF-11-2023Q4	SAMPLE	G	17-NOV-23	50mL	50mL	
640998006	MW-LF-12-2023Q4	SAMPLE	G	17-NOV-23	50mL	50mL	

EPA

METALS
-13-
SAMPLE PREPARATION SUMMARY

SDG No: 640998 **Method Type:** MS

Contract: DMNN00102 **Lab Code:** GEL

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size	Final Sample Volume	Percent Solids
640998007	MW-LF-22-2023Q4	SAMPLE	G	17-NOV-23	50mL	50mL	
640998008	AS-LF-02-2023Q4	SAMPLE	G	17-NOV-23	50mL	50mL	
640998009	AS-LF-03-2023Q4	SAMPLE	G	17-NOV-23	50mL	50mL	
640998010	FBLK-WAT-CCR-LF-23401	SAMPLE	G	17-NOV-23	50mL	50mL	
640998011	MW-BG-74-2023Q4	SAMPLE	G	17-NOV-23	50mL	50mL	
640998012	DU-WAT-CCR-LF-23401	SAMPLE	G	17-NOV-23	50mL	50mL	

EPA

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
Dominion Energy
SDG #: 640998

Product: **Ion Chromatography**
Analytical Method: EPA 300.0
Analytical Procedure: GL-GC-E-086 REV# 33
Analytical Batch: 2508731

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

GEL Sample ID#	Client Sample Identification
640998001	MW-LF-01D-2023Q4
640998002	MW-LF-07-2023Q4
640998003	MW-LF-08-2023Q4
640998004	MW-LF-10A-2023Q4
640998005	MW-LF-11-2023Q4
640998006	MW-LF-12-2023Q4
640998007	MW-LF-22-2023Q4
640998008	AS-LF-02-2023Q4
640998009	AS-LF-03-2023Q4
640998010	FBLK-WAT-CCR-LF-23401
640998011	MW-BG-74-2023Q4
640998012	DU-WAT-CCR-LF-23401
1205546657	Method Blank (MB)
1205546658	Laboratory Control Sample (LCS)
1205546659	640998007(MW-LF-22-2023Q4) Sample Duplicate (DUP)
1205546660	640998007(MW-LF-22-2023Q4) Post Spike (PS)
1205546661	640998011(MW-BG-74-2023Q4) Sample Duplicate (DUP)
1205546662	640998011(MW-BG-74-2023Q4) 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.

Quality Control (QC) Information

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
Chloride	1205546660 (MW-LF-22-2023Q4PS)	117* (90%-110%)

Technical Information

Sample Dilutions

The following samples 1205546659 (MW-LF-22-2023Q4DUP), 1205546660 (MW-LF-22-2023Q4PS), 640998005 (MW-LF-11-2023Q4) and 640998007 (MW-LF-22-2023Q4) were diluted because target analyte concentrations exceeded the calibration range. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	640998	
	005	**007**
Chloride	2X	2X

Miscellaneous Information

Manual Integrations

Sample 640998009 (AS-LF-03-2023Q4) was manually integrated to correctly position the baseline as set in the calibration standards.

Additional Comments

All method-driven specifications are followed for these analyses except where client-specific SOW requirements are required to be met.

Product: **Solids, Total Dissolved**
Analytical Method: SM 2540C
Analytical Procedure: GL-GC-E-001 REV# 21
Analytical Batches: 2508078 and 2509424

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

GEL Sample ID#	Client Sample Identification
640998001	MW-LF-01D-2023Q4
640998002	MW-LF-07-2023Q4
640998003	MW-LF-08-2023Q4
640998004	MW-LF-10A-2023Q4
640998005	MW-LF-11-2023Q4
640998006	MW-LF-12-2023Q4
640998007	MW-LF-22-2023Q4
640998008	AS-LF-02-2023Q4
640998009	AS-LF-03-2023Q4
640998010	FBLK-WAT-CCR-LF-23401
640998011	MW-BG-74-2023Q4
640998012	DU-WAT-CCR-LF-23401
1205545523	Method Blank (MB)
1205545524	Laboratory Control Sample (LCS)
1205545525	640960006(MW-FGD-06-2023Q4) Sample Duplicate (DUP)
1205545526	640966004(MW-AP-03-2023Q4) Sample Duplicate (DUP)
1205548268	Method Blank (MB)
1205548269	Laboratory Control Sample (LCS)
1205548270	640761005(NonSDG) Sample Duplicate (DUP)
1205548271	640914002(NonSDG) Sample Duplicate (DUP)
1205548272	640956010(NonSDG) Sample Duplicate (DUP)
1205548273	640998007(MW-LF-22-2023Q4) Sample Duplicate (DUP)
1205548274	641133002(NonSDG) Sample Duplicate (DUP)
1205548275	641160005(NonSDG) Sample Duplicate (DUP)

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

Duplicate Relative Percent Difference (RPD) Statement
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample:

Analyte	Sample	Value
Total Dissolved Solids	1205548273 (MW-LF-22-2023Q4DUP)	abs(28 - 17)* (+/-10 mg/L)
	1205548275 (Non SDG 641160005DUP)	18.4* (0%-5%)

Miscellaneous Information

Additional Comments
A reduced aliquot was used due to the highly radioactive and/or hazardous matrix of samples. 1205548271 (Non SDG 640914002DUP). A reduced aliquot was used due to matrix interference. 1205548272 (Non SDG 640956010DUP) and 1205548275 (Non SDG 641160005DUP). All method-driven specifications are followed for these analyses except where client-specific SOW requirements are required to be met.

Certification Statement

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

GEL LABORATORIES LLC

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

Qualifier Definition Report
for

DMNN001 Dominion Energy (50149867)

Client SDG: 640998 GEL Work Order: 640998

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

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

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

Signature: Kristen Mizzell **Name: Kristen Mizzell**

Date: 26 OCT 2023 **Title: Group Leader**

Sample Data Summary

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

Certificate of Analysis

Report Date: October 26, 2023

Company :	Dominion Energy Services, Inc.
Address :	120 Tredegar Street
	Richmond, Virginia 23219
Contact:	Kelly Hicks
Project:	CCR Groundwater Monitoring - Level 3 Package

Client Sample ID:	MW-LF-01D-2023Q4	Project:	DMNN00102
Sample ID:	640998001	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	10-OCT-23 10:55		
Receive Date:	12-OCT-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		6.75	0.0670	0.200	mg/L		1	LXA2	10/14/23	0806	2508731	1
Fluoride	U	ND	0.0330	0.100	mg/L		1					
Sulfate		0.461	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C Dissolved Solids "As Received"												
Total Dissolved Solids		17.0	2.38	10.0	mg/L			CH6	10/13/23	1502	2508078	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: October 26, 2023

Company : Dominion Energy Services, Inc.
Address : 120 Tredegar Street

Richmond, Virginia 23219
Contact: Kelly Hicks
Project: CCR Groundwater Monitoring - Level 3 Package

Client Sample ID:	MW-LF-07-2023Q4	Project:	DMNN00102
Sample ID:	640998002	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	10-OCT-23 12:10		
Receive Date:	12-OCT-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		8.07	0.0670	0.200	mg/L		1	LXA2	10/14/23	0837	2508731	1
Fluoride	U	ND	0.0330	0.100	mg/L		1					
Sulfate		5.84	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C Dissolved Solids "As Received"												
Total Dissolved Solids		16.0	2.38	10.0	mg/L			CH6	10/13/23	1502	2508078	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: October 26, 2023

Company :	Dominion Energy Services, Inc.
Address :	120 Tredegar Street
	Richmond, Virginia 23219
Contact:	Kelly Hicks
Project:	CCR Groundwater Monitoring - Level 3 Package

Client Sample ID:	MW-LF-08-2023Q4	Project:	DMNN00102
Sample ID:	640998003	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	10-OCT-23 13:20		
Receive Date:	12-OCT-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		4.86	0.0670	0.200	mg/L		1	LXA2	10/14/23	0908	2508731	1
Fluoride	U	ND	0.0330	0.100	mg/L		1					
Sulfate	J	0.350	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C Dissolved Solids "As Received"												
Total Dissolved Solids		10.0	2.38	10.0	mg/L			CH6	10/17/23	1445	2509424	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: October 26, 2023

Company : Dominion Energy Services, Inc.
Address : 120 Tredegar Street

Richmond, Virginia 23219
Contact: Kelly Hicks
Project: CCR Groundwater Monitoring - Level 3 Package

Client Sample ID:	MW-LF-10A-2023Q4	Project:	DMNN00102
Sample ID:	640998004	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	10-OCT-23 15:25		
Receive Date:	12-OCT-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		3.88	0.0670	0.200	mg/L		1	LXA2	10/14/23	0939	2508731	1
Fluoride	U	ND	0.0330	0.100	mg/L		1					
Sulfate		1.24	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C Dissolved Solids "As Received"												
Total Dissolved Solids	U	ND	2.38	10.0	mg/L			CH6	10/17/23	1445	2509424	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: October 26, 2023

Company :	Dominion Energy Services, Inc.
Address :	120 Tredegar Street
	Richmond, Virginia 23219
Contact:	Kelly Hicks
Project:	CCR Groundwater Monitoring - Level 3 Package

Client Sample ID:	MW-LF-11-2023Q4	Project:	DMNN00102
Sample ID:	640998005	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	10-OCT-23 16:30		
Receive Date:	12-OCT-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		11.9	0.134	0.400	mg/L		2	LXA2	10/14/23	1753	2508731	1
Fluoride	U	ND	0.0330	0.100	mg/L		1	LXA2	10/14/23	1010	2508731	2
Sulfate	J	0.347	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C Dissolved Solids "As Received"												
Total Dissolved Solids		24.0	2.38	10.0	mg/L			CH6	10/17/23	1445	2509424	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	SM 2540C	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: October 26, 2023

Company : Dominion Energy Services, Inc.
Address : 120 Tredegar Street

Richmond, Virginia 23219
Contact: Kelly Hicks
Project: CCR Groundwater Monitoring - Level 3 Package

Client Sample ID:	MW-LF-12-2023Q4	Project:	DMNN00102
Sample ID:	640998006	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	10-OCT-23 15:00		
Receive Date:	12-OCT-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		8.68	0.0670	0.200	mg/L		1	LXA2	10/14/23	1040	2508731	1
Fluoride		0.112	0.0330	0.100	mg/L		1					
Sulfate		0.408	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C Dissolved Solids "As Received"												
Total Dissolved Solids		15.0	2.38	10.0	mg/L			CH6	10/17/23	1445	2509424	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: October 26, 2023

Company :	Dominion Energy Services, Inc.
Address :	120 Tredegar Street
	Richmond, Virginia 23219
Contact:	Kelly Hicks
Project:	CCR Groundwater Monitoring - Level 3 Package

Client Sample ID:	MW-LF-22-2023Q4	Project:	DMNN00102
Sample ID:	640998007	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	10-OCT-23 14:15		
Receive Date:	12-OCT-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		10.1	0.134	0.400	mg/L		2	LXA2	10/14/23	1824	2508731	1
Fluoride	U	ND	0.0330	0.100	mg/L		1	LXA2	10/14/23	1111	2508731	2
Sulfate		1.09	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C Dissolved Solids "As Received"												
Total Dissolved Solids		17.0	2.38	10.0	mg/L			CH6	10/17/23	1445	2509424	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	SM 2540C	

Notes:

Column headers are defined as follows:

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

GEL LABORATORIES LLC
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Certificate of Analysis

Report Date: October 26, 2023

Company : Dominion Energy Services, Inc.
Address : 120 Tredegar Street

Richmond, Virginia 23219
Contact: Kelly Hicks
Project: CCR Groundwater Monitoring - Level 3 Package

Client Sample ID:	AS-LF-02-2023Q4	Project:	DMNN00102
Sample ID:	640998008	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	10-OCT-23 15:50		
Receive Date:	12-OCT-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		2.60	0.0670	0.200	mg/L		1	LXA2	10/14/23	1244	2508731	1
Fluoride	J	0.0647	0.0330	0.100	mg/L		1					
Sulfate		2.12	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C Dissolved Solids "As Received"												
Total Dissolved Solids	J	5.00	2.38	10.0	mg/L			CH6	10/17/23	1445	2509424	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: October 26, 2023

Company :	Dominion Energy Services, Inc.
Address :	120 Tredegar Street
	Richmond, Virginia 23219
Contact:	Kelly Hicks
Project:	CCR Groundwater Monitoring - Level 3 Package

Client Sample ID:	AS-LF-03-2023Q4	Project:	DMNN00102
Sample ID:	640998009	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	10-OCT-23 17:00		
Receive Date:	12-OCT-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		6.22	0.0670	0.200	mg/L		1	LXA2	10/14/23	1447	2508731	1
Fluoride	J	0.0408	0.0330	0.100	mg/L		1					
Sulfate		0.535	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C Dissolved Solids "As Received"												
Total Dissolved Solids	U	ND	2.38	10.0	mg/L			CH6	10/17/23	1445	2509424	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: October 26, 2023

Company : Dominion Energy Services, Inc.
Address : 120 Tredegar Street

Richmond, Virginia 23219
Contact: Kelly Hicks
Project: CCR Groundwater Monitoring - Level 3 Package

Client Sample ID:	FBLK-WAT-CCR-LF-23401	Project:	DMNN00102
Sample ID:	640998010	Client ID:	DMNN001
Matrix:	AQ		
Collect Date:	10-OCT-23 15:40		
Receive Date:	12-OCT-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride	U	ND	0.0670	0.200	mg/L		1	LXA2	10/14/23	1518	2508731	1
Fluoride	U	ND	0.0330	0.100	mg/L		1					
Sulfate	U	ND	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C Dissolved Solids "As Received"												
Total Dissolved Solids	J	4.00	2.38	10.0	mg/L			CH6	10/17/23	1445	2509424	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: October 26, 2023

Company : Dominion Energy Services, Inc.
Address : 120 Tredegar Street

Richmond, Virginia 23219
Contact: Kelly Hicks
Project: CCR Groundwater Monitoring - Level 3 Package

Client Sample ID:	MW-BG-74-2023Q4	Project:	DMNN00102
Sample ID:	640998011	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	10-OCT-23 17:25		
Receive Date:	12-OCT-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		3.97	0.0670	0.200	mg/L		1	LXA2	10/14/23	1549	2508731	1
Fluoride	J	0.0792	0.0330	0.100	mg/L		1					
Sulfate		1.16	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C Dissolved Solids "As Received"												
Total Dissolved Solids		18.0	2.38	10.0	mg/L			CH6	10/17/23	1445	2509424	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

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

Certificate of Analysis

Report Date: October 26, 2023

Company : Dominion Energy Services, Inc.
Address : 120 Tredegar Street

Richmond, Virginia 23219
Contact: Kelly Hicks
Project: CCR Groundwater Monitoring - Level 3 Package

Client Sample ID:	DU-WAT-CCR-LF-23401	Project:	DMNN00102
Sample ID:	640998012	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	10-OCT-23 12:00		
Receive Date:	12-OCT-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		8.03	0.0670	0.200	mg/L		1	LXA2	10/14/23	1722	2508731	1
Fluoride	J	0.0713	0.0330	0.100	mg/L		1					
Sulfate		5.73	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C Dissolved Solids "As Received"												
Total Dissolved Solids	J	8.00	2.38	10.0	mg/L			CH6	10/17/23	1445	2509424	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	SM 2540C	

Notes:

Column headers are defined as follows:

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

Quality Control Summary

QC Summary

Report Date: October 26, 2023

Dominion Energy Services, Inc.
120 Tredegar Street
Richmond, Virginia

Contact: **Kelly Hicks**

Workorder: **640998**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 2508731										
QC1205546659 640998007 DUP										
Chloride		10.1		10.1	mg/L	0.303		(0%-20%)	LXA2	10/14/23 18:56
Fluoride	U	ND	U	ND	mg/L	N/A				10/14/23 11:42
Sulfate		1.09		1.17	mg/L	6.98 ^		(+/-0.400)		
QC1205546661 640998011 DUP										
Chloride		3.97		3.92	mg/L	1.19		(0%-20%)		10/14/23 16:20
Fluoride	J	0.0792	J	0.0798	mg/L	0.755 ^		(+/-0.100)		
Sulfate		1.16		1.07	mg/L	8.77 ^		(+/-0.400)		
QC1205546658 LCS										
Chloride	5.00			4.65	mg/L		93	(90%-110%)		10/14/23 06:03
Fluoride	2.50			2.41	mg/L		96.6	(90%-110%)		
Sulfate	10.0			9.49	mg/L		94.9	(90%-110%)		
QC1205546657 MB										
Chloride			U	ND	mg/L					10/14/23 05:32
Fluoride			U	ND	mg/L					
Sulfate			U	ND	mg/L					
QC1205546660 640998007 PS										
Chloride	5.00	5.05		10.9	mg/L		117*	(90%-110%)		10/14/23 19:26

QC Summary

Workorder: **640998**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 2508731											
Fluoride	2.50	U	ND		2.58	mg/L		103	(90%-110%)	LXA2	10/14/23 12:13
Sulfate	10.0		1.09		10.5	mg/L		94	(90%-110%)		
QC1205546662 640998011 PS											
Chloride	5.00		3.97		9.33	mg/L		107	(90%-110%)		10/14/23 16:51
Fluoride	2.50	J	0.0792		2.52	mg/L		97.7	(90%-110%)		
Sulfate	10.0		1.16		10.9	mg/L		96.9	(90%-110%)		
Solids Analysis											
Batch 2508078											
QC1205545525 640960006 DUP											
Total Dissolved Solids			21.0		21.0	mg/L	0 ^		(+/-10.0)	CH6	10/13/23 15:02
QC1205545526 640966004 DUP											
Total Dissolved Solids			403		405	mg/L	0.495		(0%-5%)		10/13/23 15:02
QC1205545524 LCS											
Total Dissolved Solids	300				300	mg/L		100	(95%-105%)		10/13/23 15:02
QC1205545523 MB											
Total Dissolved Solids				U	ND	mg/L					10/13/23 15:02
Batch 2509424											
QC1205548270 640761005 DUP											
Total Dissolved Solids			214		215	mg/L	0.466		(0%-5%)	CH6	10/17/23 14:45
QC1205548271 640914002 DUP											
Total Dissolved Solids		U	ND	U	ND	mg/L	N/A				10/17/23 14:45
QC1205548272 640956010 DUP											
Total Dissolved Solids			1050		1060	mg/L	0.951		(0%-5%)		10/17/23 14:45

QC Summary

Workorder: **640998**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Solids Analysis										
Batch 2509424										
QC1205548273 640998007 DUP										
Total Dissolved Solids		17.0		28.0	mg/L	48.9*^		(+/-10.0)	CH6	10/17/23 14:45
QC1205548274 641133002 DUP										
Total Dissolved Solids		312		328	mg/L	5		(0%-5%)		10/17/23 14:45
QC1205548275 641160005 DUP										
Total Dissolved Solids		1070		890	mg/L	18.4*		(0%-5%)		10/17/23 14:45
QC1205548269 LCS										
Total Dissolved Solids	300			305	mg/L		102	(95%-105%)		10/17/23 14:45
QC1205548268 MB										
Total Dissolved Solids			U	ND	mg/L					10/17/23 14:45

Notes:

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- H Analytical holding time was exceeded
- < Result is less than value reported
- > Result is greater than value reported
- h Preparation or preservation holding time was exceeded
- R Sample results are rejected
- Z Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
- d 5-day BOD--The 2:1 depletion requirement was not met for this sample
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
- N/A RPD or %Recovery limits do not apply.
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- N1 See case narrative

QC Summary

Workorder: **640998**

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 purposes.

B The target analyte was detected in the associated blank.

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

J See case narrative for an explanation

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.

This quality assurance (QA) review is based upon an examination of the data generated from the analyses of the samples collected as part of:

Wateree Power Station Groundwater Sampling
Samples Collected between: 10/10/2023 and 10/11/2023

This review was performed with guidance from the associated US EPA data validation guidelines and in accordance with the Quality Assurance Program Plan. These validation guidance documents specifically address analyses performed in accordance with the Contract Laboratory Program (CLP) analytical methods and are not completely applicable to the type of analyses and analytical protocols performed for the US EPA, SW-846, and Standard Methods utilized by the laboratory for these samples. Environmental Standards, Inc. (Environmental Standards) used professional judgment to determine the usability of the analytical results and compliance relative to the US EPA, SW-846, and Standard Methods utilized by the laboratory. This QA review was performed on the data associated with Job Number:

640998

The findings offered in this report are based on a review of holding times and preservation, method blank results, field blank results, filter blank results, equipment blank results, tubing blank results, matrix spike/matrix spike duplicate recoveries and precision, laboratory control sample/laboratory control sample duplicate recoveries and precision, laboratory and field duplicate precision, total and dissolved results comparisons, and/or positive results between the method detection limit and quantitation limit.

The following results were qualified based on the data verification effort:

Sample	Location	Sample Type	Method	Analyte	T/D	Result	Qual	Reason Code(s)	MDL	QL	Uncertainty	Unit
MW-LF-01D-2023Q4	MW-LF-01D	N	EPA 200.8	Boron	T	5.26	J	RL	4.00	15.0		ug/L
MW-LF-01D-2023Q4	MW-LF-01D	N	SM 2540C	Total Dissolved Solids	N	17.0	J	BF,LD	2.38	10.0		mg/L
MW-LF-07-2023Q4	MW-LF-07	N	EPA 200.8	Boron	T	7.05	J	RL	4.00	15.0		ug/L
MW-LF-07-2023Q4	MW-LF-07	N	SM 2540C	Total Dissolved Solids	N	16.0	J	BF,LD	2.38	10.0		mg/L
MW-LF-08-2023Q4	MW-LF-08	N	EPA 200.8	Boron	T	5.75	J	RL	4.00	15.0		ug/L
MW-LF-08-2023Q4	MW-LF-08	N	EPA 300.0	Sulfate	N	0.350	J	RL	0.133	0.400		mg/L
MW-LF-08-2023Q4	MW-LF-08	N	SM 2540C	Total Dissolved Solids	N	10.0	J	BF,LD	2.38	10.0		mg/L
MW-LF-10A-2023Q4	MW-LF-10A	N	EPA 200.8	Boron	T	6.90	J	RL	4.00	15.0		ug/L
MW-LF-10A-2023Q4	MW-LF-10A	N	SM 2540C	Total Dissolved Solids	N		UJ	LD	2.38	10.0		mg/L
MW-LF-11-2023Q4	MW-LF-11	N	EPA 200.8	Boron	T	6.87	J	RL	4.00	15.0		ug/L
MW-LF-11-2023Q4	MW-LF-11	N	EPA 300.0	Sulfate	N	0.347	J	RL	0.133	0.400		mg/L
MW-LF-11-2023Q4	MW-LF-11	N	SM 2540C	Total Dissolved Solids	N	24.0	J	LD	2.38	10.0		mg/L
MW-LF-12-2023Q4	MW-LF-12	N	EPA 200.8	Boron	T	6.65	J	RL	4.00	15.0		ug/L
MW-LF-12-2023Q4	MW-LF-12	N	SM 2540C	Total Dissolved Solids	N	15.0	J	BF,LD	2.38	10.0		mg/L
MW-LF-22-2023Q4	MW-LF-22	N	EPA 200.8	Boron	T	9.97	J	RL	4.00	15.0		ug/L
MW-LF-22-2023Q4	MW-LF-22	N	SM 2540C	Total Dissolved Solids	N	17.0	J	BF,LD	2.38	10.0		mg/L
AS-LF-02-2023Q4	AS-LF-02	N	EPA 200.8	Boron	T	8.72	J	RL	4.00	15.0		ug/L
AS-LF-02-2023Q4	AS-LF-02	N	EPA 300.0	Fluoride	N	0.0647	J	RL	0.0330	0.100		mg/L
AS-LF-02-2023Q4	AS-LF-02	N	SM 2540C	Total Dissolved Solids	N	5.00	J	BF,LD,RL	2.38	10.0		mg/L
AS-LF-03-2023Q4	AS-LF-03	N	EPA 200.8	Boron	T	6.62	J	RL	4.00	15.0		ug/L
AS-LF-03-2023Q4	AS-LF-03	N	EPA 300.0	Fluoride	N	0.0408	J	RL	0.0330	0.100		mg/L
AS-LF-03-2023Q4	AS-LF-03	N	SM 2540C	Total Dissolved Solids	N		UJ	LD	2.38	10.0		mg/L
FBLK-WAT-CCR-LF-23401	Field Blank	FB	SM 2540C	Total Dissolved Solids	N	4.00	J	RL	2.38	10.0		mg/L
MW-BG-74-2023Q4	MW-BG-74	N	EPA 200.8	Boron	T	6.50	J	RL	4.00	15.0		ug/L
MW-BG-74-2023Q4	MW-BG-74	N	EPA 300.0	Fluoride	N	0.0792	J	RL	0.0330	0.100		mg/L
MW-BG-74-2023Q4	MW-BG-74	N	SM 2540C	Total Dissolved Solids	N	18.0	J	BF,LD	2.38	10.0		mg/L
DU-WAT-CCR-LF-23401	MW-LF-07	FD	EPA 200.8	Boron	T	6.32	J	RL	4.00	15.0		ug/L
DU-WAT-CCR-LF-23401	MW-LF-07	FD	EPA 300.0	Fluoride	N	0.0713	J	RL	0.0330	0.100		mg/L
DU-WAT-CCR-LF-23401	MW-LF-07	FD	SM 2540C	Total Dissolved Solids	N	8.00	J	BF,LD,RL	2.38	10.0		mg/L

Facility: Wateree Generating Station
SDG: 640998

Lab Sample ID	640998001
Sys Sample Code	MW-LF-01D-2023Q4
Sample Name	MW-LF-01D-2023Q4
Sample Date	10/10/2023 10:55:00 AM
Location	WAT-MW-LF-01D / MW-LF-01D
Sample Type	N
Matrix	GW
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	5.26	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	676				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	6.75				0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L		U			0.0330	0.0330	0.100	N	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	0.461				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	17.0	J	BF,LD		2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	640998002
Sys Sample Code	MW-LF-07-2023Q4
Sample Name	MW-LF-07-2023Q4
Sample Date	10/10/2023 12:10:00 PM
Location	WAT-MW-LF-07 / MW-LF-07
Sample Type	N
Matrix	GW
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	7.05	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	784				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	8.07				0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L		U			0.0330	0.0330	0.100	N	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	5.84				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	16.0	J	BF,LD		2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	640998003
Sys Sample Code	MW-LF-08-2023Q4
Sample Name	MW-LF-08-2023Q4
Sample Date	10/10/2023 1:20:00 PM
Location	WAT-MW-LF-08 / MW-LF-08
Sample Type	N
Matrix	GW
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	5.75	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	849				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	4.86				0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L		U			0.0330	0.0330	0.100	N	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	0.350	J	RL		0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	10.0	J	BF,LD		2.38	2.38	10.0	Y	Yes	1	NA

Facility: Wateree Generating Station
SDG: 640998

Lab Sample ID	640998004
Sys Sample Code	MW-LF-10A-2023Q4
Sample Name	MW-LF-10A-2023Q4
Sample Date	10/10/2023 3:25:00 PM
Location	WAT-MW-LF-10A / MW-LF-10A
Sample Type	N
Matrix	GW
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	6.90	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	472				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	3.88				0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L		U			0.0330	0.0330	0.100	N	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	1.24				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L		UJ	LD		2.38	2.38	10.0	N	Yes	1	NA

Lab Sample ID	640998005
Sys Sample Code	MW-LF-11-2023Q4
Sample Name	MW-LF-11-2023Q4
Sample Date	10/10/2023 4:30:00 PM
Location	WAT-MW-LF-11 / MW-LF-11
Sample Type	N
Matrix	GW
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	6.87	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	445				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Fluoride	16984-48-8	N	mg/L		U			0.0330	0.0330	0.100	N	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	0.347	J	RL		0.133	0.133	0.400	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	11.9				0.134	0.134	0.400	Y	Yes	2	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	24.0	J	LD		2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	640998006
Sys Sample Code	MW-LF-12-2023Q4
Sample Name	MW-LF-12-2023Q4
Sample Date	10/10/2023 3:00:00 PM
Location	WAT-MW-LF-12 / MW-LF-12
Sample Type	N
Matrix	GW
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	6.65	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	1820				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	8.68				0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L	0.112				0.0330	0.0330	0.100	Y	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	0.408				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	15.0	J	BF,LD		2.38	2.38	10.0	Y	Yes	1	NA

Facility: Wateree Generating Station
SDG: 640998

Lab Sample ID	640998007
Sys Sample Code	MW-LF-22-2023Q4
Sample Name	MW-LF-22-2023Q4
Sample Date	10/10/2023 2:15:00 PM
Location	WAT-MW-LF-22 / MW-LF-22
Sample Type	N
Matrix	GW
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	9.97	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	2170				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Fluoride	16984-48-8	N	mg/L		U			0.0330	0.0330	0.100	N	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	1.09				0.133	0.133	0.400	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	10.1				0.134	0.134	0.400	Y	Yes	2	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	17.0	J	BF,LD		2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	640998008
Sys Sample Code	AS-LF-02-2023Q4
Sample Name	AS-LF-02-2023Q4
Sample Date	10/10/2023 3:50:00 PM
Location	WAT-AS-LF-02 / AS-LF-02
Sample Type	N
Matrix	GW
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	8.72	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	891				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	2.60				0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L	0.0647	J	RL		0.0330	0.0330	0.100	Y	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	2.12				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	5.00	J	BF,LD,RL		2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	640998009
Sys Sample Code	AS-LF-03-2023Q4
Sample Name	AS-LF-03-2023Q4
Sample Date	10/10/2023 5:00:00 PM
Location	WAT-AS-LF-03 / AS-LF-03
Sample Type	N
Matrix	GW
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	6.62	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	853				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	6.22				0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L	0.0408	J	RL		0.0330	0.0330	0.100	Y	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	0.535				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L		UJ	LD		2.38	2.38	10.0	N	Yes	1	NA

Lab Sample ID	640998010
Sys Sample Code	FBLK-WAT-CCR-LF-23401
Sample Name	FBLK-WAT-CCR-LF-23401
Sample Date	10/10/2023 3:40:00 PM
Location	WAT-FB / Field Blank
Sample Type	FB
Matrix	AQ
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L		U			4.00	4.00	15.0	N	Yes	1	NA
	Calcium	7440-70-2	T	ug/L		U			30.0	30.0	100	N	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L		U			0.0670	0.0670	0.200	N	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L		U			0.0330	0.0330	0.100	N	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L		U			0.133	0.133	0.400	N	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	4.00	J	RL		2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	640998011
Sys Sample Code	MW-BG-74-2023Q4
Sample Name	MW-BG-74-2023Q4
Sample Date	10/10/2023 5:25:00 PM
Location	WAT-MW-BG-74 / MW-BG-74
Sample Type	N
Matrix	GW
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	6.50	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	1760				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	3.97				0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L	0.0792	J	RL		0.0330	0.0330	0.100	Y	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	1.16				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	18.0	J	BF,LD		2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	640998012
Sys Sample Code	DU-WAT-CCR-LF-23401
Sample Name	DU-WAT-CCR-LF-23401
Sample Date	10/10/2023 12:00:00 PM
Location	WAT-MW-LF-07 / MW-LF-07
Sample Type	FD
Matrix	GW
Parent Sample	MW-LF-07-2023Q4

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L	6.32	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	765				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	8.03				0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L	0.0713	J	RL		0.0330	0.0330	0.100	Y	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	5.73				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	8.00	J	BF,LD,RL		2.38	2.38	10.0	Y	Yes	1	NA

Data Qualifiers	
U	The analyte was not detected above the level of the sample reporting limit.
J	Quantitation is approximate due to limitations identified during data validation.
J+	The result is an estimated quantity; the result may be biased high.
J-	The result is an estimated quantity; the result may be biased low.
UJ	The analyte was not detected; the reporting limit is approximate and may be inaccurate or imprecise.
R	Unreliable positive result; analyte may or may not be present in sample.
Reason Codes and Explanations	
BE	Equipment blank contamination.
BF	Field blank contamination.
BL	Laboratory blank contamination.
BN	Negative laboratory blank contamination.
FD	Field duplicate imprecision.
FG	Total versus Dissolved Imprecision.
H	Holding time exceeded.
L	LCS and LCSD recoveries outside of acceptance limits
LD	Laboratory duplicate imprecision.
LP	LCS/LCSD imprecision.
M	MS and MSD recoveries outside of acceptance limits
MP	MS/MSD imprecision.
Q	Chemical Preservation issue.
RL	Reported Results between the MDL and QL.
S	Radium-226+228 flagged due to reporting protocol for combined results
T	Temperature preservation issue.
X	Percent solids < 50%.
Y	Chemical yield outside of acceptance limits
ZZ	Other

Appendix E
First Semiannual Detection Monitoring Statistical Evaluation

DOMINION ENERGY SOUTH CAROLINA

WATEREE STATION CLASS III LF

SEMIANNUAL DETECTION MONITORING

RICHLAND COUNTY, SOUTH CAROLINA

CCR GROUNDWATER DETECTION MONITORING STATISTICAL ANALYSIS REPORT

For the

March 2023 Sampling Event

June 16, 2023

Joyce Peterson, P.E.
Senior Environmental Engineer

Richard A. Mayer Jr., P.G.
Project Manager

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Statistical Analysis Report

Groundwater Sampling

TRC Environmental Corporation (TRC) is providing this Statistically Significant Increases (SSI) notification for the Wateree Station Class 3 Landfill for the twelfth semiannual detection monitoring event. Samples were collected during March 13 – 16, 2023. The laboratory analytical data packages for the event were received on March 29, 2023, and the data validation report was received on April 5, 2023.

Statistical Analysis

Statistically Significant Level (SSL) exceedances above background concentrations include the following:

- MW-LF-07: chloride
- MW-LF-08: none
- MW-LF-10A: none
- MW-LF-11: chloride
- MW-LF-22: chloride

An Alternative Source Demonstration (ASD) should be prepared for these potential SSIs.

In general accordance with the Statistical Analysis Plan[1] for Detection Monitoring, the evaluation of potential SSIs was conducted using prediction limits to compare data from the background set of monitoring wells to the most recent results from the downgradient monitoring wells. The statistical analysis plan includes regularly updating the prediction limits. This Statistical Analysis Report bases potential SSIs on updated prediction limits as described in this report. The procedure is summarized as follows:

- Background statistics were calculated using one result per monitoring period for the six background or upgradient wells (AS-LF-01, AS-LF-02, AS-LF-03, MW-BG-73, MW-LF-01, MW-LF-06). In accordance with *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities*, Unified Guidance March 2009 (EPA 530/R-09-007), Chapter 5, background will be updated after every four detection monitoring events, assuming the analytical results of the four events remain consistent with the established background distribution.
- The data set used for establishing background for the March 2023 detection monitoring includes the results from the baseline events conducted prior to the October 2017 initiation of detection monitoring, plus the results from the semiannual detection monitoring events between October 2017 and October 2022.

[1] *Statistical Analysis Plan, SCE&G Wateree Station Class III Landfill*, OBG 2017

The new data to be appended to the background data sets were tested using the Wilcoxon-Mann-Whitney (WMW) two sample hypothesis test and found to be consistent with the previous data distributions except for TDS, which exhibited a downward trend. Because the trend is downward, the inclusion of the most recent data provides a conservative updating of the background threshold values (BTV).

- The background data sets were observed graphically for potential outlier values (probability plots (*i.e.*, Q-Q graphs); see Appendix A). Graphically apparent outliers were tested using ProUCL. Outlier values for which there is a verification resample result were replaced by the resample result. Outlier values for which there is no verification resample result were removed from the background data set without replacement.
- ProUCL was used to calculate a BTV for each of the Appendix III parameters. For data sets with greater than 50 percent detected values, the BTV was calculated based on the distribution of the data. For data sets with 50 percent or fewer detected values, nonparametric BTVs were used. Kaplan-Meier adjustments were used for data sets with fewer than 50 percent nondetect values.
- Upper prediction limits (UPLs) were the preferred BTVs for data sets that met the requirements for parametric statistical methods. The UPLs were calculated for 24 future sampling events (six downgradient wells and four sampling events). If a calculated UPL is less than the practical quantitative limit (PQL), the comparison value is set at the PQL.
- Upper statistical limits (USL) were the preferred BTVs for data sets that required use of nonparametric statistical methods to account for the lower level of confidence inherent in nonparametric statistical methods. If a calculated USL is less than the PQL, the comparison value is set at the PQL.
- For background data sets with no or very few data points exceeding the PQL for that constituent, the double quantification rule (DQR) was used to establish a potential SSI. Based on the DQR, a downgradient well would need to have a detected concentration above the PQL for two consecutive sampling events to consider the well/constituent to have a potential SSI.
- Direct comparisons are made between the statistically derived BTVs and the downgradient monitoring results to identify potential SSIs for the March 2023 detection monitoring event.

The statistical calculations have been conducted using United States Environmental Protection Agency's (USEPA's) ProUCL (v.5.2) software. Table 1 presents the data representing background. Table 2 presents basic statistical information regarding the data sets and the calculated BTVs. Table 3 presents the data set for the twelfth detection monitoring event and highlights results that are potential SSIs. Appendix A includes ProUCL probability plots (Q-Q graphs) for visual identification of potential outliers; Appendix B includes ProUCL outputs for Wilcoxon-Mann-Whitney two sample hypothesis tests and trend tests for

constituents where the null hypothesis was rejected in the WMW test; Appendix C includes ProUCL outputs for Background Threshold Values.

Table 1
Background Data Set for March 2023 Semiannual Detection Monitoring Event

Table 1 Background Data Set for March 2023 Semiannual Detection Monitoring Event

EVENT	WELL	CONSTITUENT/RESULT (mg/L except as noted) [1]						
		BORON	CALCIUM	CHLORIDE	FLUORIDE	pH	SULFATE	TDS
DM-2	MW-BG-73	<44.2	266	2.14	<0.025	4.82	<0.129	25
DM-3	MW-BG-73	<21.9	161	2.16	<0.025	4.84	<0.129	22
DM-4	MW-BG-73	<21.9	338	2.54	<0.008	4.41	<0.129	20
DM-5	MW-BG-73	<38.458	343	2.62	<0.008	3.69	<0.063	18
DM-6	MW-BG-73	<38.458	335	2.39	<0.008	4.51	<0.063	10
DM-7	MW-BG-73	<38.458	245	2.25	<0.008	4.98	<0.063	51
DM-8	MW-BG-73	9.61 J	372	2.55	< 0.0330	4.61	0.444	20 J
DM-9	MW-BG-73	8.82 J	275	2.52	< 0.0330	4.5	< 0.133	12.9 J
DM-10	MW-BG-73	9.68 J	332	2.44 J+	< 0.0330	4.45	0.355 J	5.71 J
DM-11	MW-BG-73	10.9 J	280	2.52	< 0.0330	4.13	0.398 J	<2.38
BL-1	MW-LF-01	<55.7	93.7	5.33	<0.033	3.64	<0.129	19
BL-2	MW-LF-01	<55.7	74	5.3	<0.033	4.25	<0.129	24
BL-3	MW-LF-01	<55.7	79.4	5.83	0.044	3.56	<0.129	35
BL-4	MW-LF-01	<55.7	116	5.99	<0.033	4.85	<0.129	33
BL-5	MW-LF-01	<44.2	90.8	6.05	<0.033	4.74	<0.129	22
BL-6	MW-LF-01	<44.2	48.1	5.3	<0.033	4.02	<0.129	40
BL-7	MW-LF-01	<44.2	60.2	5.16	0.041	4.37	<0.129	34
BL-8	MW-LF-01	<44.2	1,440	5.09	0.038	4.53	0.87	32
DM-1	MW-LF-01	63.7	52.8	5.85	<0.033	4.53	<0.129	33
DM-2	MW-LF-01	<44.2	<54.4	5.71	<0.025	4.6	<0.129	35
DM-3	MW-LF-01	<21.9	<59	5.49	<0.025	2.48	<0.129	65

Table 1 Background Data Set for March 2023 Semiannual Detection Monitoring Event

EVENT	WELL	CONSTITUENT/RESULT (mg/L except as noted) [1]						
		BORON	CALCIUM	CHLORIDE	FLUORIDE	pH	SULFATE	TDS
DM-4	MW-LF-01	60.2	87.9	5.96	<0.008	5.47	<0.129	54
DM-5	MW-LF-01	<38.458	74.1 [4]	5.85	<0.008	4.44	<0.063	33
DM-6	MW-LF-01	<38.458	102	6.47	<0.008	4.41	<0.063	29
DM-7	MW-LF-01	75.9	372	6.31	<0.008	4.38	<0.063	56
DM-8	MW-LF-01	14.8 J	116	6.06 J	< 0.0330	4.6	0.562	35.7 J
DM-9	MW-LF-01	7.86 J	128	6.31 J	< 0.0330	4.39	0.353 J	14.3
DM-10	MW-LF-01	8.7 J	177	6.68	< 0.0719	3.94	0.476	21.4 J
DM-11	MW-LF-01	11.5 J	125	6.69 J	< 0.0330	4.38	< 0.133	9.0 J
BL-4	MW-LF-06	<55.7	714	6.81	<0.033	5.08	<0.129	38
BL-5	MW-LF-06	<44.2	739	6.9	<0.033	4.8	<0.129	28
BL-6	MW-LF-06	<44.2	997	6.31	<0.033	4.27	<0.129	39
BL-7	MW-LF-06	<44.2	786	6.07	0.034	4.33	<0.129	39
BL-8	MW-LF-06	<44.2	2,100	6.67	0.039	4.58	<0.129	36
DM-1	MW-LF-06	<44.2	770	6.98	<0.033	4.73	<0.129	36
DM-2	MW-LF-06	<44.2	777	6.18	<0.025	4.71	<0.129	35
DM-4	MW-LF-06	<21.9	592	6.31	<0.008	4.9	<0.129	27
DM-6	MW-LF-06	<38.458	866	6.3	<0.008	4.54	<0.063	31
DM-7	MW-LF-06	140	746	6.23	<0.008	4.72	<0.063	75
DM-8	MW-LF-06	9.55 J	816	8.01	< 0.0330	4.96	0.448	38.6 J
DM-9	MW-LF-06	11.8 J	3210	7.37	< 0.0330	4.29	2.38	58.6
DM-10	MW-LF-06	6.16 J	885	6.82	< 0.0330	4.63	0.448	20 J

Table 1 Background Data Set for March 2023 Semiannual Detection Monitoring Event

EVENT	WELL	CONSTITUENT/RESULT (mg/L except as noted) [1]						
		BORON	CALCIUM	CHLORIDE	FLUORIDE	pH	SULFATE	TDS
DM-11	MW-LF-06	7.41 J	925	6.46	< 0.0330	4.79	2.38	11
BL-8	AS-LF-01	<44.2	898	7.2	0.04	4.47	1.79	18
DM-1	AS-LF-01	<44.2	554	7.07 [3]	<0.1	4.65	1.4 [3]	37 [3]
DM-2	AS-LF-01	<44.2	539	8.07	<0.025	4.58	1.22	43
DM-3	AS-LF-01	<21.9	535	8.45	<0.025	3.71	<0.129	45
DM-4	AS-LF-01	<38.458	926	8.7	<0.008	4.58	<0.129	373 [2]
DM-5	AS-LF-01	<38.458	858	8.94	<0.008	4.46	0.7	48
DM-6	AS-LF-01	<38.458	1,330	9.14	<0.008	4.58	0.58	38
DM-7	AS-LF-01	<38.458	804	8.29	<0.008	4.25	<0.063	42
DM-8	AS-LF-01	10.7 J	846	7.93	0.0533 J	4.55	0.753	44.3 J
DM-9	AS-LF-01	7.66 J	711	7.81	< 0.0330	4.58	0.506	27.1
DM-10	AS-LF-01	7.53 J	912	8.92	< 0.0330	4.36	0.586	27.1
DM-11	AS-LF-01	8.99 J	1200	8.91	< 0.0330	4.54	0.891	17
BL-8	AS-LF-02	<44.2	1,660	2.67	0.045	5.74	7.89	39
DM-1	AS-LF-02	<44.2	921	2.7 [3]	<0.1 [3]	5.16	2.9 [3]	28 [3]
DM-2	AS-LF-02	<44.2	24,800 [2]	2.82	<0.025	6.2	4.6	102
DM-3	AS-LF-02	21.9	1,180	2.73	<0.025	5.12	2.29	43
DM-4	AS-LF-02	<38.458	6,300	2.73	<0.008	5.67	3.61	62
DM-5	AS-LF-02	38.7	738	2.78	<0.008	4.94	2.17	47
DM-6	AS-LF-02	<38.458	6,670	2.82	<0.008	5.78	2.94	91
DM-7	AS-LF-02	77.3	769	2.78	<0.008	5.01	2.09	47

Table 1 Background Data Set for March 2023 Semiannual Detection Monitoring Event

EVENT	WELL	CONSTITUENT/RESULT (mg/L except as noted) [1]						
		BORON	CALCIUM	CHLORIDE	FLUORIDE	pH	SULFATE	TDS
DM-8	AS-LF-02	11.5 J	6390	2.97	< 0.0330	5.74	3.06	70 J
DM-9	AS-LF-02	7.62 J	1190	2.66	< 0.0330	4.82	5.28	14.3
DM-10	AS-LF-02	9.29 J	800	2.82 J+	< 0.0330	4.81	4.08	45.7
DM-11	AS-LF-02	8.97 J	1220	2.82	< 0.0330	4.94	3.25	7 J
BL-8	AS-LF-03	<44.2	777	5.44	0.041	4.68	<0.129	22
DM-1	AS-LF-03	<44.2	557	5.49 [3]	<0.1 [3]	4.47	<0.129 [3]	24 [3]
DM-2	AS-LF-03	<44.2	520	5.73	<0.025	4.5	<0.129	32
DM-3	AS-LF-03	<21.9	562	5.95	<0.025	3.75	<0.129	54
DM-4	AS-LF-03	25.7	519	6.08	<0.008	4.13	<0.129	39
DM-5	AS-LF-03	<38.458	575	5.64	<0.008	4.35	<0.063	38
DM-6	AS-LF-03	<38.458	689	5.77	<0.008	4.27	<0.063	19
DM-7	AS-LF-03	47.9	665	5.4	<0.008	4.32	<0.063	57
DM-8	AS-LF-03	9.35 J	531	5.47	< 0.0330	4.45	0.372 J	25.7 J
DM-9	AS-LF-03	5.63 J	525	4.95	< 0.0330	4.34	< 0.133	20
DM-10	AS-LF-03	6.76 J	631	5.54	< 0.0330	3.98	0.359	20 J
DM-11	AS-LF-03	9.14 J	658	5.48	< 0.0330	3.93	0.587	10

[1] Boron and calcium concentration expressed in µg/L; pH expressed in standard units (s.u.)
[2] Outlier with no verification resample – removed from data set
[3] Missing data replaced by verification resample result (value shown on table)
[4] ND value replaced by verification resampling detection
< Result is less than the stated detection limit

Table 2
Data Set Details and Background Threshold Values

Table 2 Data Set Details and Background Threshold Values

CONSTITUENT	NUMBER of RESULTS	PERCENT DETECTED	DISTRIBUTION	TREND	BACKGROUND THRESHOLD VALUE	BASIS	PRACTICAL QUANTITATION LIMIT
Boron (µg/L)	78[1]	41	Nonparametric	N/A	77	95% USL	15
Calcium (µg/L)	78[1]	96	Nonparametric	N/A	6,670	95% USL	200
Chloride (mg/L)	79	100	Nonparametric	N/A	9.14	95% USL	0.2
Fluoride (mg/L)	79	11	Nonparametric	N/A	0.1	95% USL	0.1
pH (s.u.)	79	100	Nonparametric	N/A	2.5 – 6.2	95% USL; LCL is the minimum background result	N/A
Sulfate (mg/L)	79	46	Nonparametric	N/A	7.89	95% USL	0.4
TDS (mg/L)	78[1]	99	Gamma	Decreasing	127	95% HW UPL (k = 24)	14.3

[1] Outlier excluded from data set
N/A Not Applicable – trend test conducted only for data sets where the null hypothesis for the WMW test was rejected

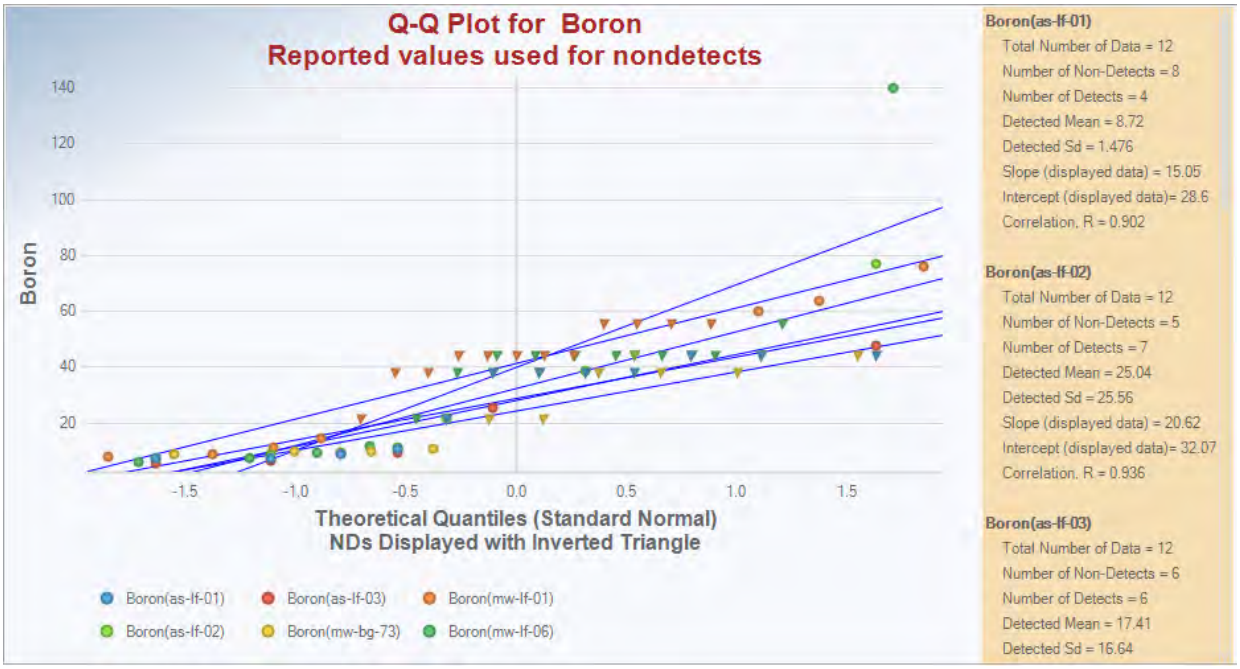
Table 3
March 2023 Downgradient Results and Potential SSIs

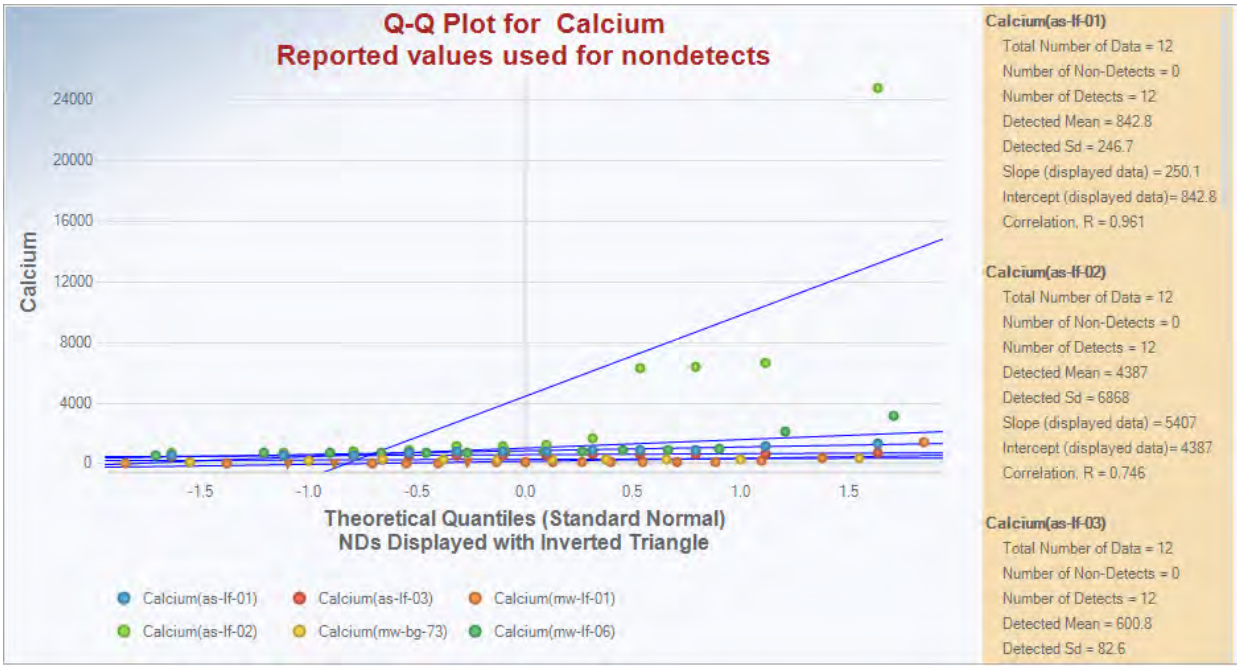
Table 3 March 2023 Downgradient Concentrations and Potential SSLs – Wateree Class 3 Landfill

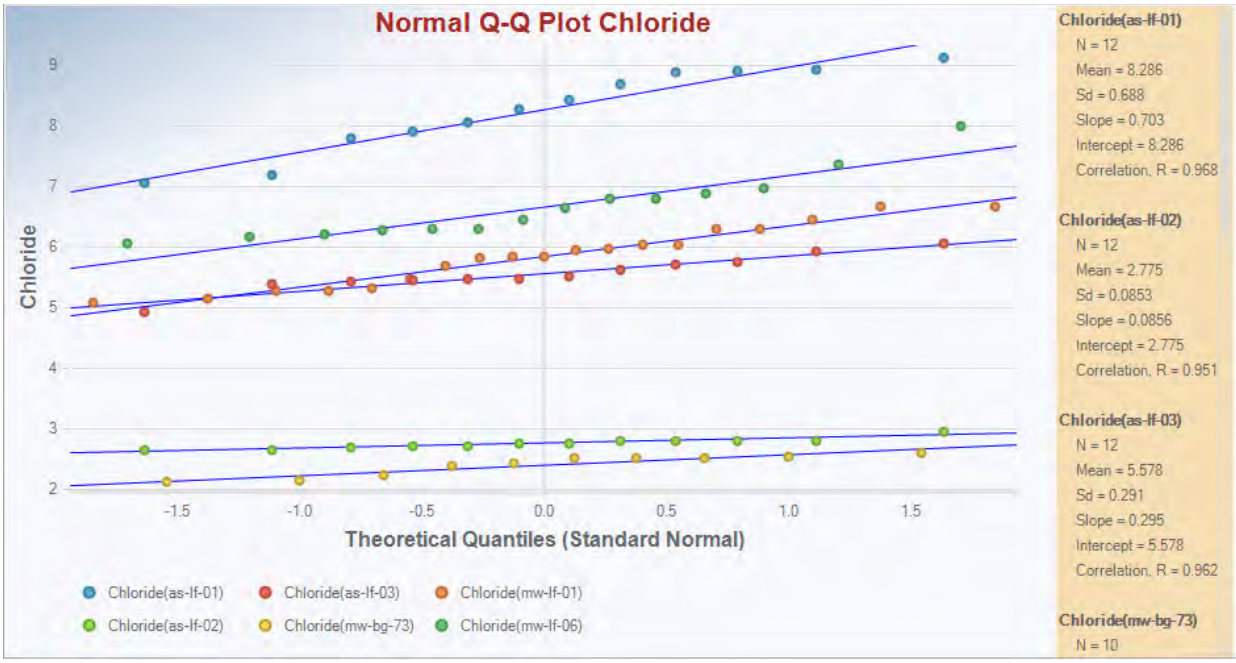
WELL	CONSTITUENT / BTV / RESULT (mg/L except as noted)[1]						
	BORON	CALCIUM	CHLORIDE	FLUORIDE	pH	SULFATE	TDS
	77	6,670	9.14	0.1	2.5 - 6.2	7.89	127
BACKGROUND WELLS							
MW-BG-73	6.60 J	302	<2.40	< 0.033	4.65	0.265 J	<2.38
MW-LF-01	8.89 J	116	8.22	0.0384 J	4.34	0.362 J	16 J
AS-LF-01	6.22 J	904	9.59	0.0504 J	4.54	0.665	14.0 J
AS-LF-02	6.66 J	2,690	3.13 J+	0.0413 J	5.30	3.74	9.0 J
AS-LF-03	5.24 J	760	6.33	0.0414 J	4.30	0.397 J	19.0 J
MW-LF-06	5.56 J	868	7.00	< 0.033	4.63	0.408	19.0 J
DOWNGRADIENT WELLS							
MW-LF-07	6.23 J	999	9.74	0.0386 J	4.45	2.61	8.00 J
MW-LF-08	6.86 J	835	5.36 J+	< 0.033	4.55	0.334	13.0 J
MW-LF-10	Not Sampled[2]						
MW-LF-10A	5.12 J	1,080	4.98 J+	0.0379 J	4.62	2.60	8.00 J
MW-LF-11	5.90 J	348	9.16	< 0.033	4.55	0.279 J	19.0 J
MW-LF-22	9.49 J	2,130	11.0	0.0411 J	4.43	1.13	34.0 J

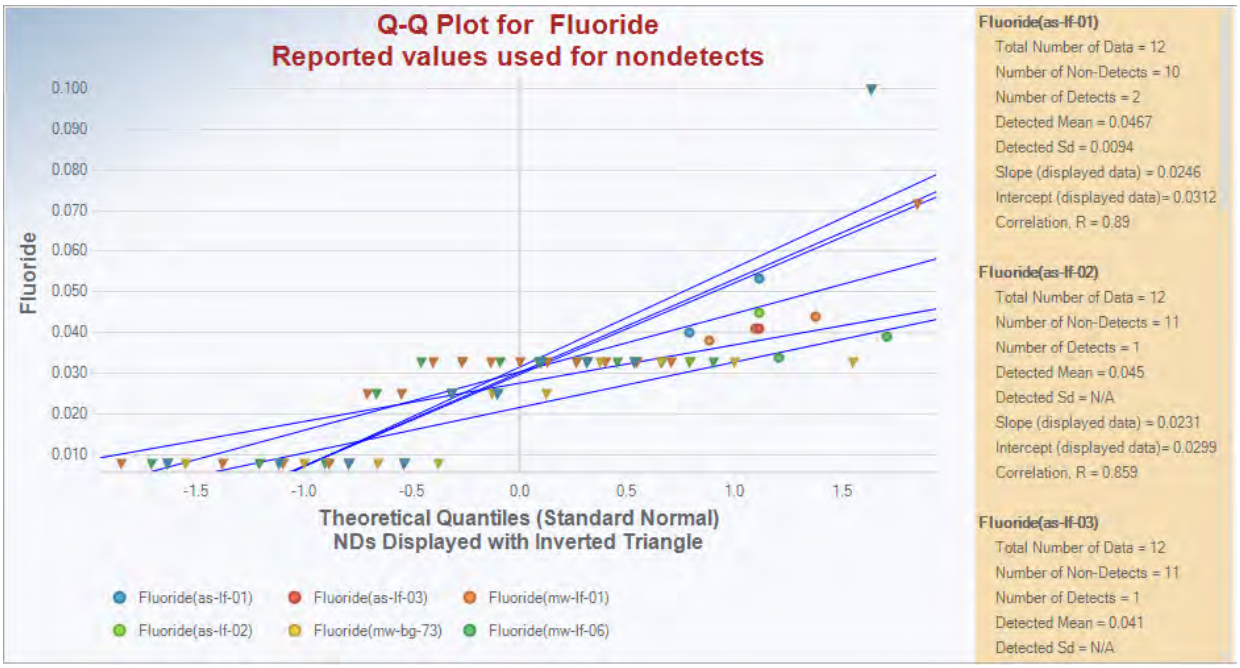
Shaded cells indicate an SSL
[1] Boron and calcium concentration expressed in µg/L; pH expressed in standard units (s.u.)
[2] MW-LF-10 was abandoned in December 2022 due to damage to the surface completion affecting the integrity of the well.
J Estimated value between the method detection limit and the practical quantitation limit
< Result is less than the stated detection limit

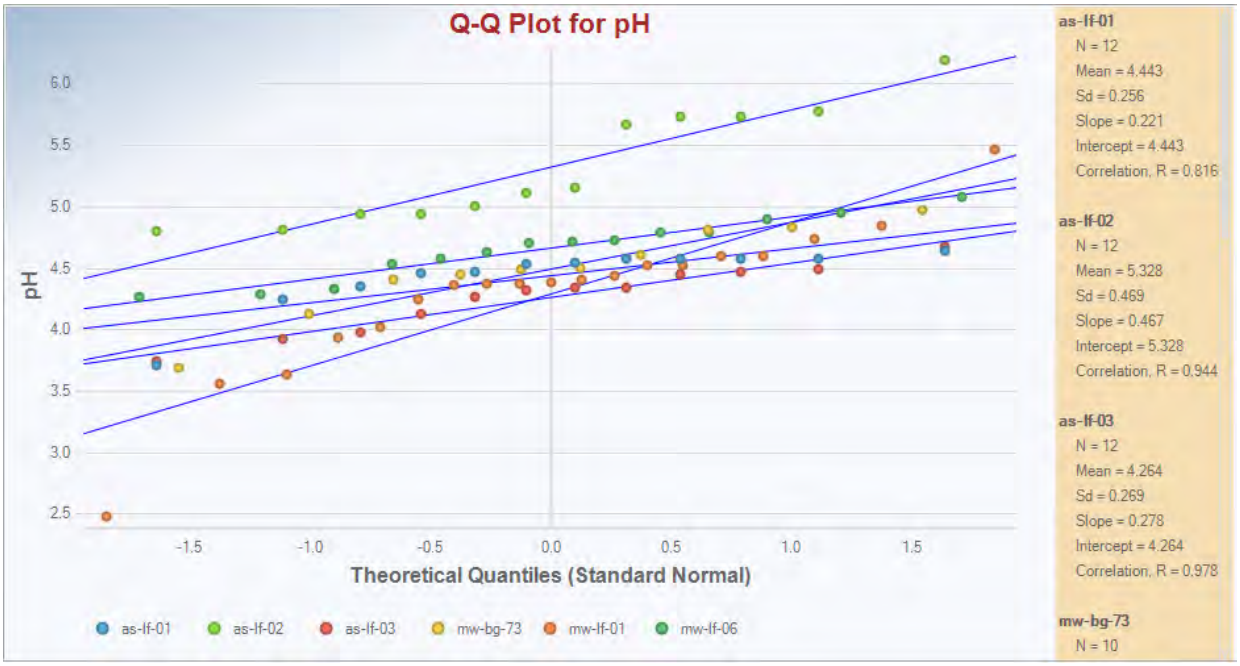
Appendix A
Probability (Q-Q) Plots and Outlier Tests

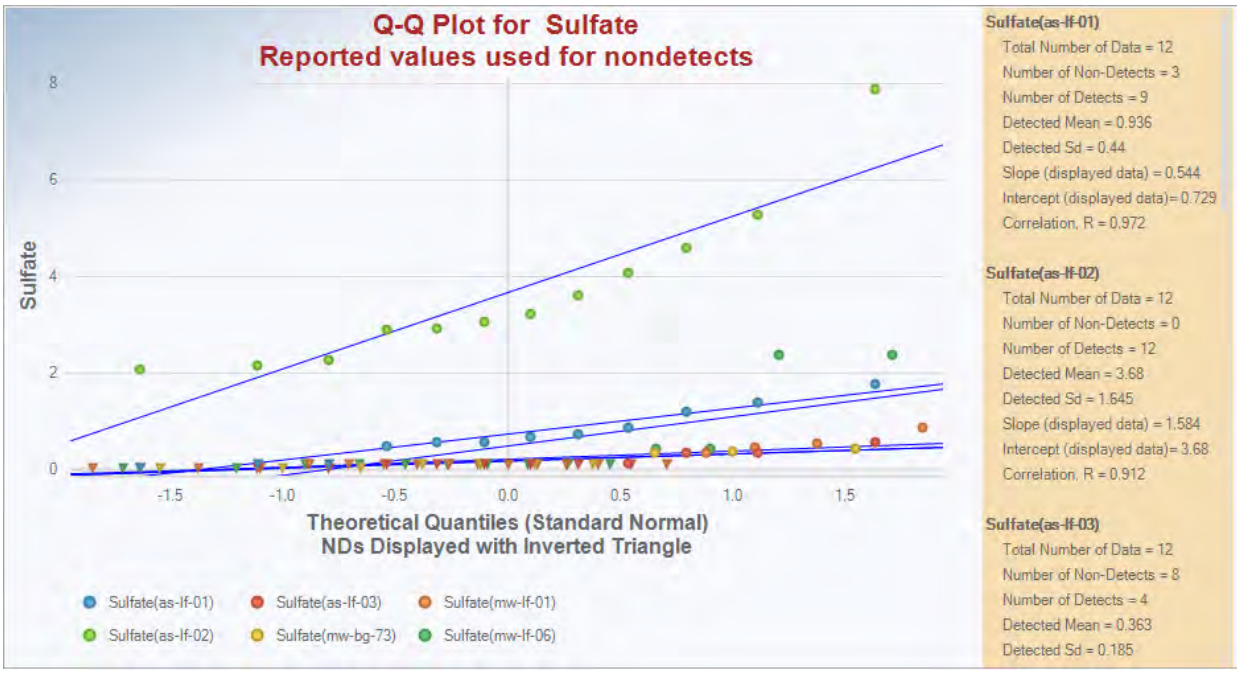

Q-Q Plot for Boron
Reported values used for nondetects
Boron
140
120
100
80
60
40
20
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle
Boron(as-lf-01)
Boron(as-lf-03)
Boron(mw-lf-01)
Boron(as-lf-02)
Boron(mw-bg-73)
Boron(mw-lf-06)
Boron(as-lf-01)
Total Number of Data = 12
Number of Non-Detects = 8
Number of Detects = 4
Detected Mean = 8.72
Detected Sd = 1.476
Slope (displayed data) = 15.05
Intercept (displayed data)= 28.6
Correlation, R = 0.902
Boron(as-lf-02)
Total Number of Data = 12
Number of Non-Detects = 5
Number of Detects = 7
Detected Mean = 25.04
Detected Sd = 25.56
Slope (displayed data) = 20.62
Intercept (displayed data)= 32.07
Correlation, R = 0.936
Boron(as-lf-03)
Total Number of Data = 12
Number of Non-Detects = 6
Number of Detects = 6
Detected Mean = 17.41
Detected Sd = 16.64

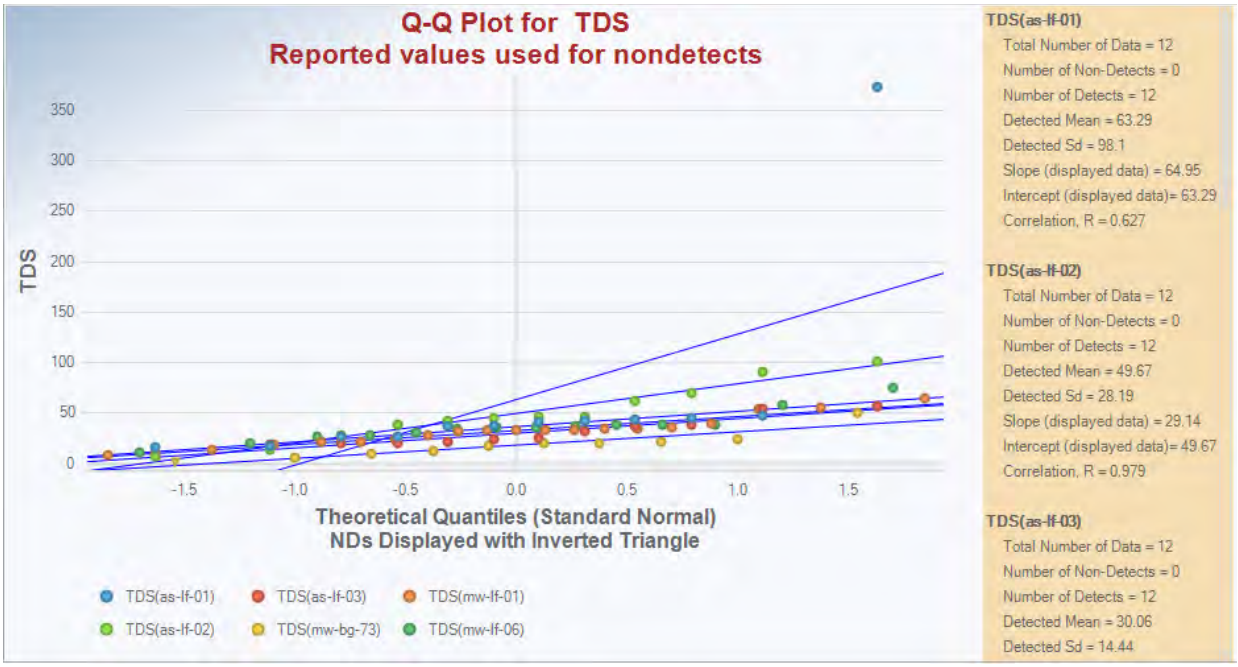

Q-Q Plot for Calcium
Reported values used for nondetects
Calcium
24000
20000
16000
12000
8000
4000
0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle
Calcium(as-lf-01)
Calcium(as-lf-03)
Calcium(mw-lf-01)
Calcium(as-lf-02)
Calcium(mw-bg-73)
Calcium(mw-lf-06)
Calcium(as-lf-01)
Total Number of Data = 12
Number of Non-Detects = 0
Number of Detects = 12
Detected Mean = 842.8
Detected Sd = 246.7
Slope (displayed data) = 250.1
Intercept (displayed data)= 842.8
Correlation, R = 0.961
Calcium(as-lf-02)
Total Number of Data = 12
Number of Non-Detects = 0
Number of Detects = 12
Detected Mean = 4387
Detected Sd = 6868
Slope (displayed data) = 5407
Intercept (displayed data)= 4387
Correlation, R = 0.746
Calcium(as-lf-03)
Total Number of Data = 12
Number of Non-Detects = 0
Number of Detects = 12
Detected Mean = 600.8
Detected Sd = 82.6


Normal Q-Q Plot Chloride
Chloride
Theoretical Quantiles (Standard Normal)
Chloride(as-lf-01)
Chloride(as-lf-03)
Chloride(mw-lf-01)
Chloride(as-lf-02)
Chloride(mw-bg-73)
Chloride(mw-lf-06)
Chloride(as-lf-01)
N = 12
Mean = 8.286
Sd = 0.688
Slope = 0.703
Intercept = 8.286
Correlation, R = 0.968
Chloride(as-lf-02)
N = 12
Mean = 2.775
Sd = 0.0853
Slope = 0.0856
Intercept = 2.775
Correlation, R = 0.951
Chloride(as-lf-03)
N = 12
Mean = 5.578
Sd = 0.291
Slope = 0.295
Intercept = 5.578
Correlation, R = 0.962
Chloride(mw-bg-73)
N = 10


Q-Q Plot for Fluoride
Reported values used for nondetects
Fluoride
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle
Fluoride(as-lf-01)
Fluoride(as-lf-03)
Fluoride(mw-lf-01)
Fluoride(as-lf-02)
Fluoride(mw-bg-73)
Fluoride(mw-lf-06)
Fluoride(as-lf-01)
Total Number of Data = 12
Number of Non-Detects = 10
Number of Detects = 2
Detected Mean = 0.0457
Detected Sd = 0.0094
Slope (displayed data) = 0.0246
Intercept (displayed data)= 0.0312
Correlation, R = 0.89
Fluoride(as-lf-02)
Total Number of Data = 12
Number of Non-Detects = 11
Number of Detects = 1
Detected Mean = 0.045
Detected Sd = N/A
Slope (displayed data) = 0.0231
Intercept (displayed data)= 0.0299
Correlation, R = 0.859
Fluoride(as-lf-03)
Total Number of Data = 12
Number of Non-Detects = 11
Number of Detects = 1
Detected Mean = 0.041
Detected Sd = N/A


Q-Q Plot for pH
pH
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)
as-lf-01
as-lf-02
as-lf-03
mw-bg-73
mw-lf-01
mw-lf-06
as-lf-01
N = 12
Mean = 4.443
Sd = 0.256
Slope = 0.221
Intercept = 4.443
Correlation, R = 0.816
as-lf-02
N = 12
Mean = 5.328
Sd = 0.469
Slope = 0.467
Intercept = 5.328
Correlation, R = 0.944
as-lf-03
N = 12
Mean = 4.264
Sd = 0.269
Slope = 0.278
Intercept = 4.264
Correlation, R = 0.978
mw-bg-73
N = 10


Q-Q Plot for Sulfate
Reported values used for nondetects
Sulfate
8
6
4
2
0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle
Sulfate(as-lf-01)
Sulfate(as-lf-02)
Sulfate(as-lf-03)
Sulfate(mw-bg-73)
Sulfate(mw-lf-01)
Sulfate(mw-lf-06)
Sulfate(as-lf-01)
Total Number of Data = 12
Number of Non-Detects = 3
Number of Detects = 9
Detected Mean = 0.936
Detected Sd = 0.44
Slope (displayed data) = 0.544
Intercept (displayed data)= 0.729
Correlation, R = 0.972
Sulfate(as-lf-02)
Total Number of Data = 12
Number of Non-Detects = 0
Number of Detects = 12
Detected Mean = 3.68
Detected Sd = 1.645
Slope (displayed data) = 1.584
Intercept (displayed data)= 3.68
Correlation, R = 0.912
Sulfate(as-lf-03)
Total Number of Data = 12
Number of Non-Detects = 8
Number of Detects = 4
Detected Mean = 0.363
Detected Sd = 0.185


Q-Q Plot for TDS
Reported values used for nondetects
TDS
350
300
250
200
150
100
50
0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle
TDS(as-lf-01)
TDS(as-lf-03)
TDS(mw-lf-01)
TDS(as-lf-02)
TDS(mw-bg-73)
TDS(mw-lf-06)
TDS(as-lf-01)
Total Number of Data = 12
Number of Non-Detects = 0
Number of Detects = 12
Detected Mean = 63.29
Detected Sd = 98.1
Slope (displayed data) = 64.95
Intercept (displayed data)= 63.29
Correlation, R = 0.627
TDS(as-lf-02)
Total Number of Data = 12
Number of Non-Detects = 0
Number of Detects = 12
Detected Mean = 49.67
Detected Sd = 28.19
Slope (displayed data) = 29.14
Intercept (displayed data)= 49.67
Correlation, R = 0.979
TDS(as-lf-03)
Total Number of Data = 12
Number of Non-Detects = 0
Number of Detects = 12
Detected Mean = 30.06
Detected Sd = 14.44

Outlier Tests for Selected Variables excluding nondetects

User Selected Options

Date/Time of Computation	ProUCL 5.2 5/23/2023 2:35:34 PM
From File	WorkSheet.xls
Full Precision	OFF

Rosner's Outlier Test for 1 Outliers in Boron

Total N	**79**
Number NDs	**46**
Number Detects	**33**
Mean of Detects	**23.37**
SD of Detects	**29.6**
Number of data	**33**
Number of suspected outliers	**1**
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)
1	23.37	29.15	140	29	4.001	2.95	3.29

For 5% Significance Level, there is 1 Potential Outlier

Therefore, Observation 140 is a Potential Statistical Outlier

For 1% Significance Level, there is 1 Potential Outlier

Outlier Tests for Selected Variables excluding nondetects

User Selected Options

Date/Time of Computation	ProUCL 5.2 5/23/2023 2:35:56 PM
From File	WorkSheet.xls
Full Precision	OFF

Rosner's Outlier Test for 1 Outliers in Calcium

Total N	**79**
Number NDs	**3**
Number Detects	**76**
Mean of Detects	**1197**
SD of Detects	**3011**
Number of data	**76**
Number of suspected outliers	**1**
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)
1	1197	2992	24800	41	7.89	3.29	3.65

For 5% Significance Level, there is 1 Potential Outlier

Therefore, Observation 24800 is a Potential Statistical Outlier

For 1% Significance Level, there is 1 Potential Outlier

Outlier Tests for Selected Variables excluding nondetects

User Selected Options

Date/Time of Computation	ProUCL 5.2 5/23/2023 2:36:27 PM
From File	WorkSheet.xls
Full Precision	OFF

Rosner's Outlier Test for 1 Outliers in TDS

Total N	**79**
Number NDs	**1**
Number Detects	**78**
Mean of Detects	**38.94**
SD of Detects	**42.36**
Number of data	**78**
Number of suspected outliers	**1**
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)
1	38.94	42.09	373	33	7.937	3.3	3.66

For 5% Significance Level, there is 1 Potential Outlier

Therefore, Observation 373 is a Potential Statistical Outlier

For 1% Significance Level, there is 1 Potential Outlier

Appendix B
Two Sample Hypothesis Test Outputs

Wilcoxon-Mann-Whitney Sample 1 vs Sample 2 Comparison Test for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.2 5/24/2023 8:49:45 AM
From File	WorkSheet_c.xls
Full Precision	OFF
Confidence Coefficient	95%
Selected Null Hypothesis	Sample 1 Mean/Median = Sample 2 Mean/Median (2 Sided Alternative
Alternative Hypothesis	Sample 1 Mean/Median <> Sample 2 Mean/Median

Sample 1 Data: Calcium previous

Sample 2 Data: Calcium update

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	54	24
Number of Missing Observations	1	0
Number of Non-Detects	3	0
Number of Detect Data	51	24
Minimum Non-Detect	54.4	N/A
Maximum Non-Detect	83.8	N/A
Percent Non-detects	5.56%	0.00%
Minimum Detect	48.1	116
Maximum Detect	6670	6390
Mean of Detects	841.9	969
Median of Detects	592	684.5
SD of Detects	1230	1316

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Sample 1 = Mean/Median of Sample 2

Sample 1 Rank Sum W-Stat	2025
WMW U-Stat	540
Standardized WMW U-Stat	-1.17
Mean (U)	648
SD(U) - Adj ties	92.37
Lower Approximate U-Stat Critical Value (0.025)	-1.96
Upper Approximate U-Stat Critical Value (0.975)	1.96
P-Value (Adjusted for Ties)	0.242

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value >= alpha (0.05)

Wilcoxon-Mann-Whitney Sample 1 vs Sample 2 Comparison Test for Uncensor Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.2 5/24/2023 8:48:54 AM
From File	WorkSheet_c.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0.000
Selected Null Hypothesis	Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean/Median <> Sample 2 Mean/Median

Sample 1 Data: Chloride previous

Sample 2 Data: Chloride new

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	55	24
Number of Distinct Observations	47	22
Minimum	2.14	2.44
Maximum	9.14	8.92
Mean	5.417	5.446
Median	5.83	5.8
SD	1.914	2.243
SE of Mean	0.258	0.458

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Sample 1 = Mean/Median of Sample 2

Sample 1 Rank Sum W-Stat	2167
WMW U-Stat	626.5
Standardized WMW U-Stat	-0.357
Mean (U)	660
SD(U) - Adj ties	93.79
Lower Approximate U-Stat Critical Value (0.025)	-1.96
Upper Approximate U-Stat Critical Value (0.975)	1.96
P-Value (Adjusted for Ties)	0.721

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value >= alpha (0.05)

Wilcoxon-Mann-Whitney Sample 1 vs Sample 2 Comparison Test for Uncensor Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.2 5/24/2023 8:52:10 AM

From File	WorkSheet_c.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0.000
Selected Null Hypothesis	Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean/Median <> Sample 2 Mean/Median

Sample 1 Data: pH previous

Sample 2 Data: pH new

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	55	24
Number of Distinct Observations	47	23
Minimum	2.48	3.93
Maximum	6.2	5.74
Mean	4.574	4.53
Median	4.54	4.52
SD	0.595	0.386
SE of Mean	0.0802	0.0787

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Sample 1 = Mean/Median of Sample 2

Sample 1 Rank Sum W-Stat	2251
WMW U-Stat	711
Standardized WMW U-Stat	0.544
Mean (U)	660
SD(U) - Adj ties	93.79
Lower Approximate U-Stat Critical Value (0.025)	-1.96
Upper Approximate U-Stat Critical Value (0.975)	1.96
P-Value (Adjusted for Ties)	0.587

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value >= alpha (0.05)

Wilcoxon-Mann-Whitney Sample 1 vs Sample 2 Comparison Test for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.2 5/24/2023 8:55:17 AM
From File	WorkSheet_c.xls
Full Precision	OFF
Confidence Coefficient	95%
Selected Null Hypothesis	Sample 1 Mean/Median = Sample 2 Mean/Median (2 Sided Alternative

Alternative Hypothesis Sample 1 Mean/Median <> Sample 2 Mean/Median

Sample 1 Data: TDS prev

Sample 2 Data: TDS new

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	54	24
Number of Missing Observations	1	0
Number of Non-Detects	0	1
Number of Detect Data	54	23
Minimum Non-Detect	N/A	2.38
Maximum Non-Detect	N/A	2.38
Percent Non-detects	0.00%	4.17%
Minimum Detect	10	5.71
Maximum Detect	102	70
Mean of Detects	38.69	25.02
Median of Detects	36	20
SD of Detects	17.33	16.77

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Sample 1 = Mean/Median of Sample 2

Sample 1 Rank Sum W-Stat	2471
WMW U-Stat	985.5
Standardized WMW U-Stat	3.655
Mean (U)	648
SD(U) - Adj ties	92.34
Lower Approximate U-Stat Critical Value (0.025)	-1.96
Upper Approximate U-Stat Critical Value (0.975)	1.96
P-Value (Adjusted for Ties)	2.5701E-4

Conclusion with Alpha = 0.05

Reject H0, Conclude Sample 1 <> Sample 2

P-Value < alpha (0.05)

Theil-Sen Trend Test Analysis

User Selected Options	
Date/Time of Computation	ProUCL 5.2 5/23/2023 5:45:54 PM
From File	WorkSheet_b.xls
Full Precision	OFF
Average Replicates	Replicates at sampling events will be averaged!
Confidence Coefficient	0.95
Level of Significance	0.05

TDS

General Statistics

Number of Events	62
Number Values Observations	63
Number Values Missing	52
Number of Values Reported (n)	11
Number of Values After Averaging	11
Number of Replicates	51
Minimum	9.397
Maximum	54.67
Mean	35.2
Geometric Mean	32.35
Median	36.8
Standard Deviation	12.54
Coefficient of Variation	0.356

Mann-Kendall Statistics

M-K Test Value (S)	-25
Tabulated p-value	0.03
Standard Deviation of S	12.85
Standardized Value of S	-1.868
Approximate p-value	0.0309

Approximate inference for Theil-Sen Trend Test

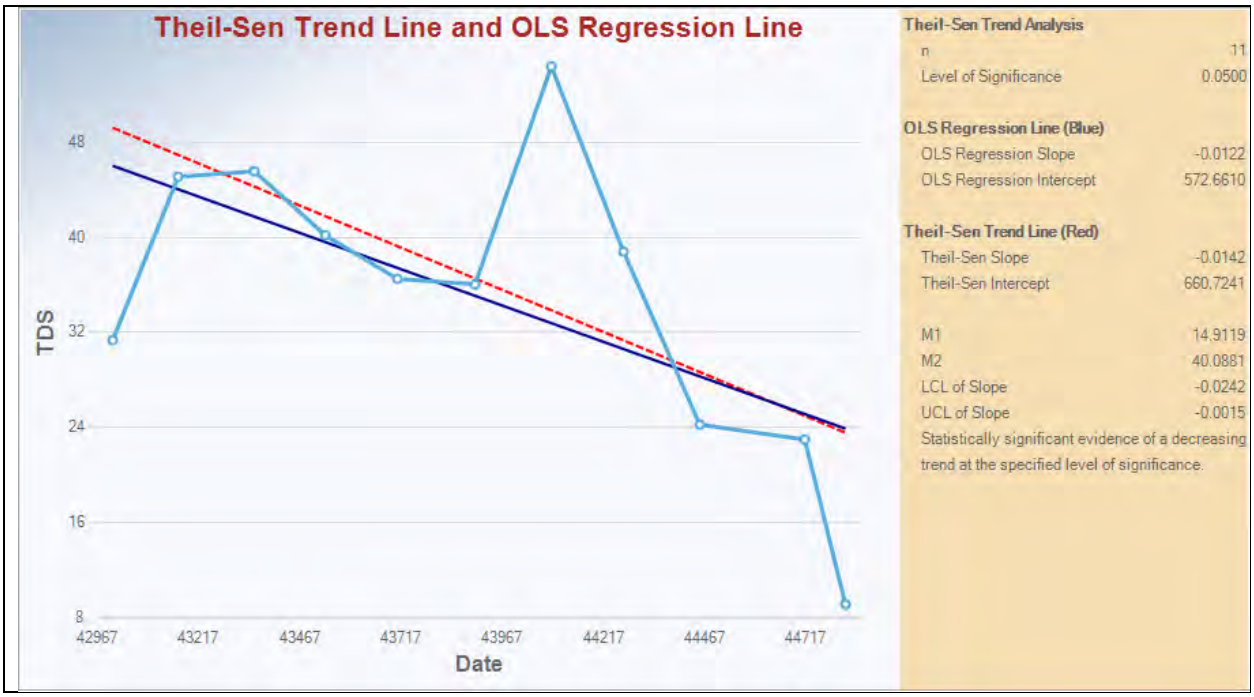
Number of Slopes	55
Theil-Sen Slope	-0.0142
Theil-Sen Intercept	660.7
M2'	38.06
One-sided 95% upper limit of Slope	-0.00453
95% LCL of Slope (0.025)	-0.0242
95% UCL of Slope (0.975)	-0.00146

Statistically significant evidence of a decreasing trend at the specified level of significance.

Theil-Sen Trend Test Estimates and Residuals

#	Events	Values	Estimates	Residuals
1	43005	31.6	49.52	-17.92
7	43165	45.33	47.25	-1.913
16	43354	45.8	44.56	1.24
17	43528	40.4	42.09	-1.687
22	43706	36.8	39.56	-2.757
28	43900	36.33	36.8	-0.467
38	44088	54.67	34.13	20.54

40	44264	39.05	31.63	7.423
50	44454	24.53	28.93	-4.393
52	44714	23.32	25.23	-1.913
57	44813	9.397	23.82	-14.43



Appendix C
Background Threshold Values

Background Statistics for Uncensored Full Data Sets

User Selected Options

Date/Time of Computation	ProUCL 5.2 5/24/2023 9:03:12 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	24
Number of Bootstrap Operations	2000

Chloride

General Statistics

Total Number of Observations	79	Number of Distinct Observations	67
Minimum	2.14	First Quartile	2.82
Second Largest	8.94	Median	5.83
Maximum	9.14	Third Quartile	6.675
Mean	5.426	SD	2.005
Coefficient of Variation	0.37	Skewness	-0.205
Mean of logged Data	1.608	SD of logged Data	0.433

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.963	d2max (for USL)	3.127

Normal GOF Test

Shapiro Wilk Test Statistic	0.895	**Normal GOF Test**
1% Shapiro Wilk P Value	3.3200E-7	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.169	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.115	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	9.361	90% Percentile (z)	7.995
95% UPL (t)	8.784	95% Percentile (z)	8.724
95% UPL for Next 24 Observations	11.38	99% Percentile (z)	10.09
95% UPL for Mean of 24 Observations	6.204	95% USL	11.7

Gamma GOF Test

A-D Test Statistic	4.323	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.753	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.214	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.101	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	6.192	k star (bias corrected MLE)	5.965
Theta hat (MLE)	0.876	Theta star (bias corrected MLE)	0.91
nu hat (MLE)	978.3	nu star (bias corrected)	942.5
MLE Mean (bias corrected)	5.426	MLE Sd (bias corrected)	2.222

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	9.576	90% Percentile	8.396
95% Hawkins Wixley (HW) Approx. Gamma UPL	9.73	95% Percentile	9.52
95% WH UPL for Next 24 Observations	14.36	99% Percentile	11.88
95% HW UPL for Next 24 Observations	15.04		
95% WH Approx. Gamma UTL with 95% Coverage	10.53	95% HW Approx. Gamma UTL with 95% Coverage	10.76
95% WH USL	15.03	95% HW USL	15.81

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.837	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk P Value	4.433E-12	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.238	**Lilliefors Lognormal GOF Test**

10% Lilliefors Critical Value	0.0913	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	11.69	90% Percentile (z)	8.703
95% UPL (t)	10.32	95% Percentile (z)	10.19
95% UPL for Next 24 Observations	18.1	99% Percentile (z)	13.69
95% UPL for Mean of 24 Observations	5.909	95% USL	19.37

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	79	95% UTL with 95% Coverage	9.14
Approx, f used to compute achieved CC	2.053	Approximate Actual Confidence Coefficient achieved by UTL	0.91
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	8.94	95% BCA Bootstrap UTL with 95% Coverage	8.94
95% UPL	8.91	90% Percentile	8.022
90% Chebyshev UPL	11.48	95% Percentile	8.721
95% Chebyshev UPL	14.22	99% Percentile	8.984
95% USL	**9.14**		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

pH

General Statistics

Total Number of Observations	79	Number of Distinct Observations	61
Minimum	2.48	First Quartile	4.345
Second Largest	5.78	Median	4.54
Maximum	6.2	Third Quartile	4.805
Mean	**4.56**	SD	0.538
Coefficient of Variation	0.118	Skewness	-0.0956
Mean of logged Data	1.51	SD of logged Data	0.124

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.963	d2max (for USL)	3.127

Normal GOF Test

Shapiro Wilk Test Statistic	0.944	**Normal GOF Test**
1% Shapiro Wilk P Value	0.00334	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.13	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.115	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	5.615	90% Percentile (z)	5.249
95% UPL (t)	5.461	95% Percentile (z)	5.444
95% UPL for Next 24 Observations	6.157	99% Percentile (z)	5.811
95% UPL for Mean of 24 Observations	4.769	95% USL	6.242

Gamma GOF Test

A-D Test Statistic	1.937	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.749	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.143	**Kolmogorov-Smirnov Gamma GOF Test**

5% K-S Critical Value	0.1	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	69.06	k star (bias corrected MLE)	66.45
Theta hat (MLE)	0.066	Theta star (bias corrected MLE)	0.0686
nu hat (MLE)	10912	nu star (bias corrected)	10499
MLE Mean (bias corrected)	4.56	MLE Sd (bias corrected)	0.559

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	5.524	90% Percentile	5.29
95% Hawkins Wixley (HW) Approx. Gamma UPL	5.534	95% Percentile	5.518
95% WH UPL for Next 24 Observations	6.377	99% Percentile	5.962
95% HW UPL for Next 24 Observations	6.413		
95% WH Approx. Gamma UTL with 95% Coverage	5.706	95% HW Approx. Gamma UTL with 95% Coverage	5.721
95% WH USL	6.485	95% HW USL	6.526

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.909	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk P Value	5.0606E-6	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.153	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.0913	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	5.773	90% Percentile (z)	5.306
95% UPL (t)	5.571	95% Percentile (z)	5.55
95% UPL for Next 24 Observations	6.541	99% Percentile (z)	6.039
95% UPL for Mean of 24 Observations	4.75	95% USL	6.669

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	79	95% UTL with 95% Coverage	6.2
Approx, f used to compute achieved CC	2.053	Approximate Actual Confidence Coefficient achieved by UTL	0.91
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	5.78	95% BCA Bootstrap UTL with 95% Coverage	5.78
95% UPL	5.74	90% Percentile	5.088
90% Chebyshev UPL	6.183	95% Percentile	5.677
95% Chebyshev UPL	6.918	99% Percentile	5.872
95% USL	**6.2**	LSL = 4.56 - (6.2 -4.56)	

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation	ProUCL 5.2 5/24/2023 9:12:37 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	24
Number of Bootstrap Operations	2000

Boron OL rem

General Statistics

Total Number of Observations	78	Number of Missing Observations	1
Number of Distinct Observations	34		
Number of Detects	32	Number of Non-Detects	46
Number of Distinct Detects	31	Number of Distinct Non-Detects	4
Minimum Detect	5.63	Minimum Non-Detect	21.9
Maximum Detect	77.3	Maximum Non-Detect	55.7
Variance Detected	451.9	Percent Non-Detects	58.97%
Mean Detected	19.73	SD Detected	21.26
Mean of Detected Logged Data	2.606	SD of Detected Logged Data	0.787

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.965	d2max (for USL)	3.123

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.632	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.904	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.364	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.18	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	14.2	KM SD	14.72
95% UTL95% Coverage	43.12	95% KM UPL (t)	38.86
95% KM UPL for Next 24 Observations	57.95	95% KM UPL for Mean of Next 24 Observations	19.92
90% KM Percentile (z)	33.06	95% KM Percentile (z)	38.41
99% KM Percentile (z)	48.44	95% KM USL	60.16

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	20.12	SD	13.92
95% UTL95% Coverage	47.47	95% UPL (t)	43.44
95% UPL for Next 24 Observations	61.48	95% UPL for Mean of Next 24 Observations	25.53
90% Percentile (z)	37.96	95% Percentile (z)	43.01
99% Percentile (z)	52.49	95% USL	63.58

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	3.849	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.765	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.332	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.158	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.475	k star (bias corrected MLE)	1.358
Theta hat (MLE)	13.37	Theta star (bias corrected MLE)	14.53
nu hat (MLE)	94.41	nu star (bias corrected)	86.89
MLE Mean (bias corrected)	19.73		
MLE Sd (bias corrected)	16.93	95% Percentile of Chisquare (2kstar)	7.315

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	14.89
Maximum	77.3	Median	9.645
SD	15.93	CV	1.069
k hat (MLE)	0.726	k star (bias corrected MLE)	0.707
Theta hat (MLE)	20.5	Theta star (bias corrected MLE)	21.07
nu hat (MLE)	113.3	nu star (bias corrected)	110.3
MLE Mean (bias corrected)	14.89	MLE Sd (bias corrected)	17.71
95% Percentile of Chisquare (2kstar)	4.795	90% Percentile	37.29
95% Percentile	50.51	99% Percentile	82.02

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	58.07	68.65	95% Approx. Gamma UPL	47.49	54.13
95% Gamma USL	116	157.4	95% UPL for Next 24 Observations	106.9	142.6

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	14.2	SD (KM)	14.72
Variance (KM)	216.6	SE of Mean (KM)	1.809
k hat (KM)	0.931	k star (KM)	0.904
nu hat (KM)	145.3	nu star (KM)	141
theta hat (KM)	15.25	theta star (KM)	15.71
80% gamma percentile (KM)	23.04	90% gamma percentile (KM)	33.52
95% gamma percentile (KM)	44.1	99% gamma percentile (KM)	68.84

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	37.37	36.74	95% Approx. Gamma UPL	32.35	31.62
95% KM Gamma Percentile	31.85	31.11	95% Gamma USL	62.63	63.69

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.785	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.941	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.288	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.142	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	15.09	Mean in Log Scale	2.46
SD in Original Scale	14.69	SD in Log Scale	0.639
95% UTL95% Coverage	41.06	95% BCA UTL95% Coverage	75.9
95% Bootstrap (%) UTL95% Coverage	75.9	95% UPL (t)	34.13
95% UPL for Next 24 Observations	78.16	95% UPL for Mean of 24 Observations	15
90% Percentile (z)	26.53	95% Percentile (z)	33.47
99% Percentile (z)	51.73	95% USL	86.06

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.405	95% KM UTL (Lognormal)95% Coverage	35.1
KM SD of Logged Data	0.587	95% KM UPL (Lognormal)	29.61
95% KM Percentile Lognormal (z)	29.08	95% KM USL (Lognormal)	69.26

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	20.12	Mean in Log Scale	2.831
SD in Original Scale	13.92	SD in Log Scale	0.568
95% UTL95% Coverage	51.8	95% UPL (t)	43.94
95% UPL for Next 24 Observations	91.83	95% UPL for Mean of 24 Observations	21.15

90% Percentile (z)	35.13	95% Percentile (z)	43.19
99% Percentile (z)	63.61	95% USL	100

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	77	95% UTL with95% Coverage	77.3
Approx, f used to compute achieved CC	2.026	Approximate Actual Confidence Coefficient achieved by UTL	0.907
Approximate Sample Size needed to achieve specified CC	59	95% UPL	60.38
95% USL	**77.3**	95% KM Chebyshev UPL	78.76

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Calcium OL rem

General Statistics

Total Number of Observations	78	Number of Missing Observations	1
Number of Distinct Observations	75		
Number of Detects	75	Number of Non-Detects	3
Number of Distinct Detects	72	Number of Distinct Non-Detects	3
Minimum Detect	48.1	Minimum Non-Detect	54.4
Maximum Detect	6670	Maximum Non-Detect	83.8
Variance Detected	1563068	Percent Non-Detects	3.846%
Mean Detected	882.6	SD Detected	1250
Mean of Detected Logged Data	6.235	SD of Detected Logged Data	1.066

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.965	d2max (for USL)	3.123

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.525	**Normal GOF Test on Detected Observations Only**	
1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.313	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.118	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	850.7	KM SD	1228
95% UTL95% Coverage	3264	95% KM UPL (t)	2908
95% KM UPL for Next 24 Observations	4501	95% KM UPL for Mean of Next 24 Observations	1328
90% KM Percentile (z)	2425	95% KM Percentile (z)	2871
99% KM Percentile (z)	3708	95% KM USL	4686

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	849.9	SD	1237
95% UTL95% Coverage	3280	95% UPL (t)	2922
95% UPL for Next 24 Observations	4525	95% UPL for Mean of Next 24 Observations	1330
90% Percentile (z)	2435	95% Percentile (z)	2884
99% Percentile (z)	3727	95% USL	4712

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	2.398	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.78	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.179	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.106	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.047	k star (bias corrected MLE)	1.014
Theta hat (MLE)	842.8	Theta star (bias corrected MLE)	870.2
nu hat (MLE)	157.1	nu star (bias corrected)	152.1
MLE Mean (bias corrected)	882.6		
MLE Sd (bias corrected)	876.4	95% Percentile of Chisquare (2kstar)	6.046

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	848.6
Maximum	6670	Median	611.5
SD	1237	CV	1.458
k hat (MLE)	0.658	k star (bias corrected MLE)	0.642
Theta hat (MLE)	1289	Theta star (bias corrected MLE)	1323
nu hat (MLE)	102.7	nu star (bias corrected)	100.1
MLE Mean (bias corrected)	848.6	MLE Sd (bias corrected)	1059
95% Percentile of Chisquare (2kstar)	4.507	90% Percentile	2174
95% Percentile	2981	99% Percentile	4921

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3281	3734	95% Approx. Gamma UPL	2671	2940
95% Gamma USL	6642	8595	95% UPL for Next 24 Observations	6114	7783

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	850.7	SD (KM)	1228
Variance (KM)	1508339	SE of Mean (KM)	140
k hat (KM)	0.48	k star (KM)	0.47
nu hat (KM)	74.84	nu star (KM)	73.3
theta hat (KM)	1773	theta star (KM)	1810
80% gamma percentile (KM)	1393	90% gamma percentile (KM)	2331
95% gamma percentile (KM)	3341	99% gamma percentile (KM)	5839

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3009	3134	95% Approx. Gamma UPL	2479	2529
95% KM Gamma Percentile	2427	2471	95% Gamma USL	5878	6685

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.932	**Shapiro Wilk GOF Test**
10% Shapiro Wilk P Value	6.1133E-4	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.173	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.0936	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	851	Mean in Log Scale	6.153
SD in Original Scale	1236	SD in Log Scale	1.123
95% UTL95% Coverage	4274	95% BCA UTL95% Coverage	6314
95% Bootstrap (%) UTL95% Coverage	6356	95% UPL (t)	3087
95% UPL for Next 24 Observations	13250	95% UPL for Mean of 24 Observations	727.4
90% Percentile (z)	1983	95% Percentile (z)	2983
99% Percentile (z)	6414	95% USL	15695

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	6.147	95% KM UTL (Lognormal)95% Coverage	4276
KM SD of Logged Data	1.126	95% KM UPL (Lognormal)	3086
95% KM Percentile Lognormal (z)	2981	95% KM USL (Lognormal)	15757

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	849.9	Mean in Log Scale	6.128
SD in Original Scale	1237	SD in Log Scale	1.174
95% UTL95% Coverage	4610	95% UPL (t)	3281
95% UPL for Next 24 Observations	15043	95% UPL for Mean of 24 Observations	724
90% Percentile (z)	2066	95% Percentile (z)	3165
99% Percentile (z)	7046	95% USL	17955

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	77	95% UTL with95% Coverage	6670
Approx, f used to compute achieved CC	2.026	Approximate Actual Confidence Coefficient achieved by UTL	0.907
Approximate Sample Size needed to achieve specified CC	59	95% UPL	3364
95% USL	**6670**	95% KM Chebyshev UPL	6238

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Fluoride

General Statistics

Total Number of Observations	79	Number of Missing Observations	0
Number of Distinct Observations	13		
Number of Detects	9	Number of Non-Detects	70
Number of Distinct Detects	8	Number of Distinct Non-Detects	5
Minimum Detect	0.034	Minimum Non-Detect	0.008
Maximum Detect	0.0533	Maximum Non-Detect	0.1
Variance Detected	2.9360E-5	Percent Non-Detects	88.61%
Mean Detected	0.0417	SD Detected	0.00542
Mean of Detected Logged Data	-3.184	SD of Detected Logged Data	0.125

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.963	d2max (for USL)	3.127

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.922	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.764	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.218	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.316	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.012	KM SD	0.0111
95% UTL95% Coverage	0.0338	95% KM UPL (t)	0.0306
95% KM UPL for Next 24 Observations	**0.045**	95% KM UPL for Mean of Next 24 Observations	0.0163
90% KM Percentile (z)	0.0263	95% KM Percentile (z)	0.0303
99% KM Percentile (z)	0.0379	95% KM USL	0.0467

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0167	SD	0.0131
95% UTL95% Coverage	0.0425	95% UPL (t)	0.0387
95% UPL for Next 24 Observations	0.0557	95% UPL for Mean of Next 24 Observations	0.0218

90% Percentile (z)	0.0335	95% Percentile (z)	0.0383
99% Percentile (z)	0.0473	95% USL	0.0578

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.324	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.72	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.207	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.279	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	70.27	k star (bias corrected MLE)	46.92
Theta hat (MLE)	5.9342E-4	Theta star (bias corrected MLE)	8.8872E-4
nu hat (MLE)	1265	nu star (bias corrected)	844.6
MLE Mean (bias corrected)	0.0417		
MLE Sd (bias corrected)	0.00609	95% Percentile of Chisquare (2kstar)	117.5

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.0203
Maximum	0.0533	Median	0.018
SD	0.0105	CV	0.516
k hat (MLE)	4.232	k star (bias corrected MLE)	4.08
Theta hat (MLE)	0.00479	Theta star (bias corrected MLE)	0.00497
nu hat (MLE)	668.7	nu star (bias corrected)	644.7
MLE Mean (bias corrected)	0.0203	MLE Sd (bias corrected)	0.01

95% Percentile of Chisquare (2kstar)	15.74	90% Percentile	0.0337
95% Percentile	0.0391	99% Percentile	0.0505

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0439	0.0445	95% Approx. Gamma UPL	0.0393	0.0396
95% Gamma USL	0.0662	0.0694	95% UPL for Next 24 Observations	0.0628	0.0655

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.012	SD (KM)	0.0111
Variance (KM)	1.2306E-4	SE of Mean (KM)	0.00136
k hat (KM)	1.179	k star (KM)	1.142
nu hat (KM)	186.2	nu star (KM)	180.5
theta hat (KM)	0.0102	theta star (KM)	0.0105
80% gamma percentile (KM)	0.0192	90% gamma percentile (KM)	0.0268
95% gamma percentile (KM)	0.0344	99% gamma percentile (KM)	0.0519

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0302	0.0296	95% Approx. Gamma UPL	0.0263	0.0257
95% KM Gamma Percentile	0.026	0.0254	95% Gamma USL	0.0494	0.0499

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.952	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.859	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.198	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.252	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0245	Mean in Log Scale	-3.765
SD in Original Scale	0.00838	SD in Log Scale	0.329
95% UTL95% Coverage	0.0441	95% BCA UTL95% Coverage	0.0441
95% Bootstrap (%) UTL95% Coverage	0.045	95% UPL (t)	0.0402
95% UPL for Next 24 Observations	0.0615	95% UPL for Mean of 24 Observations	0.0263
90% Percentile (z)	0.0353	95% Percentile (z)	0.0398
99% Percentile (z)	0.0498	95% USL	0.0647

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-4.631	95% KM UTL (Lognormal)95% Coverage	0.0279
KM SD of Logged Data	0.536	95% KM UPL (Lognormal)	0.0239
95% KM Percentile Lognormal (z)	0.0235	95% KM USL (Lognormal)	0.0521

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0167	Mean in Log Scale	-4.399
SD in Original Scale	0.0131	SD in Log Scale	0.818
95% UTL95% Coverage	0.0612	95% UPL (t)	0.0484
95% UPL for Next 24 Observations	0.14	95% UPL for Mean of 24 Observations	0.0169
90% Percentile (z)	0.0351	95% Percentile (z)	0.0472
99% Percentile (z)	0.0825	95% USL	0.159

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	78	95% UTL with95% Coverage	0.1
Approx, f used to compute achieved CC	2.053	Approximate Actual Confidence Coefficient achieved by UTL	0.91
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.0719
95% USL	**0.1**	95% KM Chebyshev UPL	0.0607

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Sulfate

General Statistics

Total Number of Observations	79	Number of Missing Observations	0
Number of Distinct Observations	36		
Number of Detects	36	Number of Non-Detects	43
Number of Distinct Detects	34	Number of Distinct Non-Detects	3
Minimum Detect	0.133	Minimum Non-Detect	0.063
Maximum Detect	7.89	Maximum Non-Detect	0.133
Variance Detected	3.006	Percent Non-Detects	54.43%
Mean Detected	1.754	SD Detected	1.734
Mean of Detected Logged Data	0.101	SD of Detected Logged Data	0.998

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.963	d2max (for USL)	3.127

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.807	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.912	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.219	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.17	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.834	KM SD	1.429

95% UTL95% Coverage	3.638	95% KM UPL (t)	3.227
95% KM UPL for Next 24 Observations	5.078	95% KM UPL for Mean of Next 24 Observations	1.388
90% KM Percentile (z)	2.665	95% KM Percentile (z)	3.184
99% KM Percentile (z)	4.157	95% KM USL	5.302

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.83	SD	1.44
95% UTL95% Coverage	3.656	95% UPL (t)	3.242
95% UPL for Next 24 Observations	5.108	95% UPL for Mean of Next 24 Observations	1.388
90% Percentile (z)	2.675	95% Percentile (z)	3.198
99% Percentile (z)	4.18	95% USL	5.333

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.128	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.772	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.175	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.15	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.224	k star (bias corrected MLE)	1.14
Theta hat (MLE)	1.434	Theta star (bias corrected MLE)	1.539
nu hat (MLE)	88.1	nu star (bias corrected)	82.09
MLE Mean (bias corrected)	1.754		
MLE Sd (bias corrected)	1.643	95% Percentile of Chisquare (2kstar)	6.524

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.805
Maximum	7.89	Median	0.01
SD	1.454	CV	1.806
k hat (MLE)	0.306	k star (bias corrected MLE)	0.303
Theta hat (MLE)	2.628	Theta star (bias corrected MLE)	2.655
nu hat (MLE)	48.4	nu star (bias corrected)	47.89
MLE Mean (bias corrected)	0.805	MLE Sd (bias corrected)	1.462
95% Percentile of Chisquare (2kstar)	2.764	90% Percentile	2.371
95% Percentile	3.669	99% Percentile	7.04

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	4.112	4.573	95% Approx. Gamma UPL	3.095	3.262
95% Gamma USL	10.48	14.23	95% UPL for Next 24 Observations	9.384	12.43

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.834	SD (KM)	1.429
Variance (KM)	2.041	SE of Mean (KM)	0.163
k hat (KM)	0.341	k star (KM)	0.336
nu hat (KM)	53.8	nu star (KM)	53.09
theta hat (KM)	2.448	theta star (KM)	2.481
80% gamma percentile (KM)	1.31	90% gamma percentile (KM)	2.422
95% gamma percentile (KM)	3.675	99% gamma percentile (KM)	6.887

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3.681	3.839	95% Approx. Gamma UPL	2.878	2.902
95% KM Gamma Percentile	2.801	2.814	95% Gamma USL	8.448	10.1

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.943	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.945	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.154	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.134	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.854	Mean in Log Scale	-1.402
SD in Original Scale	1.428	SD in Log Scale	1.695
95% UTL95% Coverage	6.848	95% BCA UTL95% Coverage	5.28
95% Bootstrap (%) UTL95% Coverage	4.929	95% UPL (t)	4.206
95% UPL for Next 24 Observations	37.81	95% UPL for Mean of 24 Observations	0.475
90% Percentile (z)	2.159	95% Percentile (z)	3.996
99% Percentile (z)	12.68	95% USL	49.3

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.459	95% KM UTL (Lognormal)95% Coverage	5.108
KM SD of Logged Data	1.574	95% KM UPL (Lognormal)	3.248
95% KM Percentile Lognormal (z)	3.097	95% KM USL (Lognormal)	31.95

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.83	Mean in Log Scale	-1.554
SD in Original Scale	1.44	SD in Log Scale	1.681
95% UTL95% Coverage	5.731	95% UPL (t)	3.533
95% UPL for Next 24 Observations	31.21	95% UPL for Mean of 24 Observations	0.406
90% Percentile (z)	1.823	95% Percentile (z)	3.358
99% Percentile (z)	10.56	95% USL	40.61

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	78	95% UTL with95% Coverage	7.89
Approx, f used to compute achieved CC	2.053	Approximate Actual Confidence Coefficient achieved by UTL	0.91
Approximate Sample Size needed to achieve specified CC	59	95% UPL	4.08
95% USL	**7.89**	95% KM Chebyshev UPL	7.1

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

TDS OL rem

General Statistics

Total Number of Observations	78	Number of Missing Observations	1
Number of Distinct Observations	51		
Number of Detects	77	Number of Non-Detects	1
Number of Distinct Detects	50	Number of Distinct Non-Detects	1
Minimum Detect	5.71	Minimum Non-Detect	2.38
Maximum Detect	102	Maximum Non-Detect	2.38
Variance Detected	330.5	Percent Non-Detects	1.282%
Mean Detected	34.6	SD Detected	18.18
Mean of Detected Logged Data	3.402	SD of Detected Logged Data	0.564

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.965	d2max (for USL)	3.123

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.927	**Normal GOF Test on Detected Observations Only**	
1% Shapiro Wilk P Value	2.0678E-4	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.119	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.117	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	34.19	KM SD	18.31
95% UTL95% Coverage	70.16	95% KM UPL (t)	64.86
95% KM UPL for Next 24 Observations	88.6	95% KM UPL for Mean of Next 24 Observations	41.3
90% KM Percentile (z)	57.65	95% KM Percentile (z)	64.3
99% KM Percentile (z)	76.78	95% KM USL	91.36

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	34.17	SD	18.45
95% UTL95% Coverage	70.43	95% UPL (t)	65.09
95% UPL for Next 24 Observations	89.02	95% UPL for Mean of Next 24 Observations	41.35
90% Percentile (z)	57.82	95% Percentile (z)	64.53
99% Percentile (z)	77.1	95% USL	91.8

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.302	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.757	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0695	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.102	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.678	k star (bias corrected MLE)	3.544

Theta hat (MLE)	9.407	Theta star (bias corrected MLE)	9.764
nu hat (MLE)	566.5	nu star (bias corrected)	545.7
MLE Mean (bias corrected)	34.6		
MLE Sd (bias corrected)	18.38	95% Percentile of Chisquare (2kstar)	14.19

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	3.655	Mean	34.21
Maximum	102	Median	33
SD	18.4	CV	0.538
k hat (MLE)	3.332	k star (bias corrected MLE)	3.212
Theta hat (MLE)	10.27	Theta star (bias corrected MLE)	10.65
nu hat (MLE)	519.8	nu star (bias corrected)	501.1
MLE Mean (bias corrected)	34.21	MLE Sd (bias corrected)	19.09
95% Percentile of Chisquare (2kstar)	13.22	90% Percentile	59.8
95% Percentile	70.4	99% Percentile	93.31

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	79.91	82.71	95% Approx. Gamma UPL	70.71	72.48
95% Gamma USL	124.6	134.8	**95% UPL for Next 24 Observations**	118	**126.9**

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	34.19	SD (KM)	18.31
Variance (KM)	335.1	SE of Mean (KM)	2.086
k hat (KM)	3.488	k star (KM)	3.362
nu hat (KM)	544.1	nu star (KM)	524.5

theta hat (KM)	9.802	theta star (KM)	10.17
80% gamma percentile (KM)	48.11	90% gamma percentile (KM)	59.19
95% gamma percentile (KM)	69.47	99% gamma percentile (KM)	91.63

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	80.17	83.24	95% Approx. Gamma UPL	70.9	72.85
95% KM Gamma Percentile	69.96	71.81	95% Gamma USL	125.3	136.2

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.967	**Shapiro Wilk GOF Test**
10% Shapiro Wilk P Value	0.157	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.103	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.0924	Data Not Lognormal at 10% Significance Level

Detected Data appear Approximate Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	34.25	Mean in Log Scale	3.383
SD in Original Scale	18.33	SD in Log Scale	0.586
95% UTL95% Coverage	93.12	95% BCA UTL95% Coverage	91
95% Bootstrap (%) UTL95% Coverage	77.4	95% UPL (t)	78.59
95% UPL for Next 24 Observations	168	95% UPL for Mean of 24 Observations	36.98
90% Percentile (z)	62.39	95% Percentile (z)	77.19
99% Percentile (z)	115.1	95% USL	183.5

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.369	95% KM UTL (Lognormal)95% Coverage	99.42
KM SD of Logged Data	0.626	95% KM UPL (Lognormal)	82.94
95% KM Percentile Lognormal (z)	81.36	95% KM USL (Lognormal)	205.2

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	34.17	Mean in Log Scale	3.361
SD in Original Scale	18.45	SD in Log Scale	0.669
95% UTL95% Coverage	107.3	95% UPL (t)	88.41
95% UPL for Next 24 Observations	210.6	95% UPL for Mean of 24 Observations	37.36
90% Percentile (z)	67.92	95% Percentile (z)	86.62
99% Percentile (z)	136.7	95% USL	233

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	77	95% UTL with95% Coverage	102
Approx, f used to compute achieved CC	2.026	Approximate Actual Confidence Coefficient achieved by UTL	0.907
Approximate Sample Size needed to achieve specified CC	59	95% UPL	70.25
95% USL	102	95% KM Chebyshev UPL	114.5

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Appendix F
Second Semiannual Detection Monitoring Statistical Evaluation

DOMINION ENERGY SOUTH CAROLINA

WATEREE STATION CLASS III LANDFILL

SEMIANNUAL DETECTION MONITORING

RICHLAND COUNTY, SOUTH CAROLINA

CCR GROUNDWATER DETECTION MONITORING STATISTICAL ANALYSIS REPORT

For the

October 2023 Sampling Event

January 5, 2024

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Statistical Analysis Report

Background

In December 2022, Dominion Energy South Carolina (DESC) installed three new groundwater monitoring wells upgradient and to the northeast and along the southwest edge of the Wateree Station Class III Landfill. The new monitoring wells were sampled from January 2023 through August 2023, to collect eight rounds of background monitoring data. To ensure the groundwater monitoring well network meets the requirements of 40 CFR 257.91, the monitoring well network was revised and certified in September 2023 (TRC, 2023a) to include the following monitoring wells:

- Background monitoring wells – MW-LF-01D, MW-BG-74, and AS-LF-03.
- Downgradient monitoring wells – MW-LF-07, MW-LF-08, MW-LF-10A, MW-LF-11, MW-LF-12, and MW-LF-22.

TRC Environmental Corporation (TRC) conducted a baseline statistical evaluation of the CCR Rule Appendix III and Appendix IV constituents in November 2023 for the revised monitoring well network. A copy of the Baseline Statistical Evaluation Report is provided in **Appendix A**.

Groundwater Sampling

TRC Environmental Corporation (TRC) is providing this Statistically Significant Increases (SSI) notification for the Wateree Station Class III Landfill for the 2nd Semiannual 2023 Detection Monitoring Program event. Samples were collected on October 10, 2023. The final laboratory analytical data package for the event was received on December 1, 2023, and the data validation report was received on December 1, 2023.

Statistical Analysis

Statistically Significant Increases (SSI) exceedances above background concentrations include the following:

- MW-LF-07: chloride
- MW-LF-11: chloride
- MW-LF-12: chloride and fluoride
- MW-LF-22: chloride

In general accordance with the Statistical Analysis Plan (OBG, 2017) for Detection Monitoring, the evaluation of potential SSIs was conducted using prediction limits to compare data from the background set of monitoring wells to the most recent results from the downgradient monitoring wells. The statistical calculations have been conducted using United States Environmental Protection Agency's (USEPA's) ProUCL (v.5.2) software. **Table 1** presents basic statistical information regarding the data sets

and the calculated background threshold values (BTVs). **Table 2** presents the data set for the October 2023 Detection Monitoring Program event and highlights results that are potential SSIs. **Appendix B** presents the background data used for the October 2023 Detection Monitoring Program event.

Table 1
Background Threshold Values

Table 1 Background Threshold Values

CONSTITUENT	NUMBER of RESULTS	PERCENT DETECTED	DISTRIBUTION	TREND	BACKGROUND THRESHOLD VALUE	BASIS
Boron (µg/L)	24	100	Normal	N/A	14.0	95% UPL, k=28
Calcium (µg/L)	24	100	Nonnormal	N/A	5,080	95% USL
Chloride (mg/L)	24	100	Nonnormal	N/A	7.78	95% USL
Fluoride (mg/L)	24	58	Normal	N/A	0.111	95% KM UPL, k=28
pH (S.U.)	24	100	Normal	N/A	3.0 – 6.6	95% UPL, k=28
Sulfate (mg/L)	24	100	Gamma	N/A	15.3	95% HW UPL, k=28
TDS (mg/L)	24	88	Normal	N/A	56.8	95% KM UPL, k=28

pH expressed in standard units (S.U.).
TDS = Total dissolved solids.
µg/L = micrograms per liter.
mg/L = milligrams per liter.
HW = Hawkins Wixley method.
KM = Kaplan-Meier method.
N/A = Not applicable.
UPL = Upper prediction limit.
USL = Upper statistical limit.
k = Number of independent groups.

Table 2
October 2023
Downgradient Results and Potential SSIs

Table 2 October 2023 Downgradient Results and Potential SSIs

WELL	CONSTITUENT / BTV / RESULT						
	BORON (µg/L)	CALCIUM (µg/L)	CHLORIDE (mg/L)	FLUORIDE (mg/L)	pH (S.U.)	SULFATE (mg/L)	TDS (mg/L)
	14.0	5,080	7.78	0.111	3.0 – 6.6	15.3	56.8
BACKGROUND WELLS							
AS-LF-03	6.62 J	853	6.22	0.0408 J	4.31	0.535	< 2.38
MW-BG-74	6.50 J	1,760	3.97	0.0792 J	4.85	1.16	18.0
MW-LF-01D	5.26 J	676	6.75	< 0.033	4.65	0.461	17.0
DOWNGRADIENT WELLS							
AS-LF-02	8.72 J	891	2.60	0.0647 J	4.58	2.12	5.00 J
MW-LF-07	7.05 J	784	8.07	< 0.033	4.41	5.84	16.0
MW-LF-08	5.75 J	849	4.86	< 0.033	4.65	0.350 J	10.0
MW-LF-10A	6.90 J	472	3.88	< 0.033	4.52	1.24	< 2.38
MW-LF-11	6.87 J	445	11.9	< 0.033	4.59	0.347 J	24.0
MW-LF-12	6.65 J	1,820	8.68	0.112	4.33	0.408	15.0
MW-LF-22	9.97 J	2,170	10.1	< 0.033	4.27	1.09	17.0

Shaded cells indicate a statistically significant increase (SSI).

BTV = Background threshold values.

pH expressed in standard units (S.U.).

TDS = Total dissolved solids.

µg/L = micrograms per liter.

mg/L = milligrams per liter.

J Estimated concentration.

< Result less than the indicated detection limit.

Appendix A
Baseline Statistical Evaluation Report

DOMINION ENERGY SOUTH CAROLINA

WATEREE GENERATING STATION

CLASS III LANDFILL

RICHLAND COUNTY, SOUTH CAROLINA

BASELINE STATISTICAL EVALUATION REPORT

For the

January - August 2023 Baseline Sampling Events

December 15, 2023

Joyce Peterson, P.E.
Senior Environmental Engineer

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Project Manager

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Section 1
Background

Dominion Energy South Carolina (DESC) owns and operates the Wateree Generating Station (Station) located near Eastover, in Richland County, South Carolina. Coal combustion residuals (CCR) are produced as part of the electrical generation operations and is disposed of in the Class III Industrial Landfill (Unit). The CCR Unit is managed in accordance with the South Carolina Department of Health and Environmental Control (SCDHEC) Class III Landfill Permit (Permit No. LF3-00026) and the national criteria established by the United States Environmental Protection Agency (EPA) CCR Rule. Pursuant to 40 CFR §257.94(b) of this rule, eight independent samples from each background and downgradient well must be collected and analyzed from the constituents listed in Appendix III and Appendix IV. This Report provides information for baseline data evaluation of the new monitoring well network for the Unit.

1.1 Site Location

The Station is located at 142 Wateree Station Road in Richland County, South Carolina (**Figure 1**). The Station is located approximately 5 miles southeast of Eastover, South Carolina. The Unit is located on the western portion of the Station property approximately 2,000 feet from the generating plant.

1.2 Groundwater Monitoring System

Pursuant to 40 CFR §257.91(a)(2), the groundwater monitoring well network should accurately represent the quality of groundwater passing the waste boundary of the Unit and monitor all potential contaminant pathways. From December 2022 through September 2023, TRC conducted an evaluation of the CCR Groundwater Monitoring Well Network to determine if it satisfied the CCR Rule for horizontal and vertical placements for monitoring groundwater upgradient and at the waste boundary of the Unit. The certified monitoring well network for the Unit consisted of the following:

- Background monitoring wells – MW-LF-01, MW-BG-73, MW-LF-06, AS-LF-01, AS-LF-02, and AS-LF-03.
- Downgradient monitoring wells – MW-LF-07, MW-LF-08, MW-LF-10, MW-LF-10A, MW-LF-11, and MW-LF-22.

In December 2022, DESC installed three new groundwater monitoring wells (MW-LF-01D, MW-LF-12 and MW-BG-74) upgradient to the northeast of the Unit. The new monitoring wells were sampled from January 2023 through August 2023, to collect eight rounds of background monitoring data. To ensure the groundwater monitoring well network meets the requirements of 40 CFR 257.91, the monitoring well

network was updated and certified in September 2023 (TRC, 2023) to include the following monitoring wells:

- Background monitoring wells – MW-LF-01D, MW-BG-74 and AS-LF-03.
- Downgradient monitoring wells – MW-LF-07, MW-LF-08, MW-LF-10A, MW-LF-11, MW-LF-12, and MW-LF-22.

Details of the CCR Groundwater Monitoring Well Network are provided in **Table 1**. The revised monitoring well network is presented on **Figure 2**: CCR Rule Compliance Monitoring Well Network. A groundwater potentiometric map from March 2023 is included as **Figure 3**: Groundwater Potentiometric Map – March 10, 2023.

Table 1
Revised CCR Rule Groundwater Monitoring System

LOCATION	RELATIVE LOCATION	WELL DIAMETER (IN.)	BOTTOM OF SCREEN (FT-BGS)	SCREEN LENGTH (FT)
MW-LF-01D	Upgradient	2	49	10
MW-BG-74	Upgradient	2	51	10
AS-LF-03	Upgradient	2	35	10
AS-LF-02	Downgradient	2	52	10
MW-LF-07	Downgradient	2	28	10
MW-LF-08	Downgradient	2	33	10
MW-LF-10A	Downgradient	2	25	10
MW-LF-11	Downgradient	2	27	10
MW-LF-12	Downgradient	2	41	10
MW-LF-22	Downgradient	2	31	15

NA Not available

Section 2
Baseline Statistical Evaluation

Groundwater samples were collected from the newly installed downgradient monitoring wells on a monthly basis from January 2023 through August 2023 for a total of eight baseline sampling events. The groundwater samples were submitted to GEL Laboratories, LLC in Charleston, South Carolina, for analysis of the CCR Rule Appendix III and Appendix IV constituents. Environmental Standards, Inc., conducted quality assurance reviews of the analytical results and managed the data in an EQuIS database. A summary table of the baseline sampling results is provided in **Appendix A**. **Table 2** lists the Appendix III and Appendix IV constituents.

Table 2
Groundwater Quality Monitoring Constituents

APPENDIX III CONSTITUENTS	APPENDIX IV CONSTITUENTS	
Boron	Antimony	Lead
Calcium	Arsenic	Lithium
Chloride	Barium	Mercury
Fluoride	Beryllium	Molybdenum
Field pH	Cadmium	Radium 226/228
Sulfate	Chromium	Selenium
Total Dissolved Solids	Cobalt	Thallium
	Fluoride	

The following procedure was conducted to establish new background concentrations for detection monitoring of the Unit. Statistical calculations and evaluations were conducted using US EPA's ProUCL (v.5.2) Software. The evaluation procedures were conducted separately for Appendix III and Appendix IV constituents.

- The data for all wells were observed for detection frequency, potential outliers, and missing data.
- General statistical parameters were evaluated for Appendix III and IV (ProUCL outputs for these are provided in **Appendix B**).
- The Appendix III data for background wells MW-LF-01D, MW-BG-74, and AS-LF-03 were evaluated for underlying data distribution (ProUCL outputs are provided in **Appendix C**).

- Based on underlying data distribution, ProUCLs Background Threshold Value function was used to calculate background concentrations for use in subsequent statistical evaluations of downgradient groundwater monitoring data.
- Statistical evaluations for Appendix IV constituents were performed for data sets with more than 50 percent detections.

The preferred statistical method for background comparisons being conducted by DESC is the upper prediction limit (UPL). UPL are calculated for k=28 future comparisons (seven downgradient monitoring wells, four subsequent detection monitoring events) when the data set meets the requirements for parametric statistical evaluation. In accordance with the Statistical Evaluation Plan, statistical calculations for data sets with censored (nondetect) results are conducted as follows:

- For data sets with between 50 and 100 percent detected concentrations, the Kaplan-Meier method is used for statistical calculations.
- For data sets with fewer than 50 percent detected concentrations, nonparametric statistical methods are employed.
- For data sets with 100 percent nondetect values in the background data set, the double quantification rule is employed. A downgradient detection above the practical quantification limit in two consecutive groundwater monitoring events is deemed to be an SSI for that constituent.

Selection of the background threshold value for a background data set with at least 50 percent detected concentrations is based on the following hierarchy:

- Normal
- Gamma
- Lognormal
- Nonnormal (nonparametric)
- When nonparametric statistics are necessary, the upper statistical limit (USL) is used to compensate in part for the lower statistical power of the nonparametric statistical methods.

2.1 Appendix III Results

Five of the Appendix III constituents had 100 percent detections for all five monitoring wells; the background data sets had some nondetect results for fluoride and total dissolved solids (TDS). Q-Q plots were generated for the Appendix III constituents, and potential outlier values were observed for sulfate and TDS. The ProUCL outlier function was used to test whether the potential outlier values were statistically significant at the 1 percent level of significance. Based on the results, the outlier values were removed from the data sets before evaluating the background threshold value. The results of these tests are provided in **Appendix C**.

For calculation of background threshold values, the data sets for the three upgradient monitoring wells, MW-LF-01D, MW-BG-74, and AS-LF-03, were combined. **Table 3** provides a summary of the statistical results for of the background data sets for Appendix III constituents. The ProUCL outputs are provided in **Appendix C**.

Table 3
Appendix III Data Set Details and Background Threshold Values

CONSTITUENT	PERCENT DETECTED	DISTRIBUTION	BACKGROUND THRESHOLD VALUE	BASIS
Boron (µg/L)	100	Normal	14.0	95% UPL, k=28
Calcium (µg/L)	100	Nonnormal	5,080	95% USL[1]
Chloride (mg/L)	100	Nonnormal	7.78	95% USL[1]
Fluoride(mg/L)	58	Normal	0.111	95% KM UPL, k=28
pH (s.u.)	100	Normal	3.0 – 6.6	95% UPL, k=28
Sulfate (mg/L)	100	Gamma	15.3	95% HW UPL, k=28
TDS (mg/L)	88	Normal	56.8	95% KM UPL, k=28

[1] Upper statistical limit

2.2 Appendix IV Results

Baseline sampling included the 15 constituents included in Appendix IV to the CCR rule. The Appendix IV results for the background wells in the new monitoring well network were used to estimate what GWPS would likely be applied in the event that the Unit were to transition to an assessment monitoring program. As set forth in the CCR rule, GWPS default to values established in the CCR rule unless background concentrations exceed those values. **Appendix A** provides a table of Appendix IV analytical results for both the upgradient and downgradient monitoring wells in the new monitoring well network.

Of the 15 Appendix IV constituents, five were not detected in background baseline samples and another three were detected in fewer than 50 percent of the background samples. For the non-detected constituents, the default GWPS is selected as the GWPS without further evaluation. For the constituents detected in fewer than 50 percent of the analyses, the maximum detected concentration is used for the background concentration (non-parametric background limit). Statistical evaluation was conducted for the remaining seven Appendix IV constituents.

Table 4 provides a summary of the statistical evaluation of the Appendix IV constituents. The same methods were used to evaluate the Appendix IV data as were used for the Appendix III data. The UPLs

for Appendix IV parameters are calculated for a single future event. The ProUCL outputs for the background concentration evaluation is provided in **Appendix B** and **Appendix C**.

Table 4
Appendix IV Data Set Details and Preliminary Groundwater Protection Standards

CONSTITUENT	PERCENT DETECTED	MAXIMUM DETECTED	DEFAULT GWPS[1]	BACKGROUND CONCENTRATION	PRELIMINARY GWPS
Antimony	0	NA	6	NC	6
Arsenic	0	NA	10	NC	10
Barium	100	139	2000	139	2000
Beryllium	71	0.852	4	0.791	4
Cadmium	8	0.04 J	5	0.04	5
Chromium	0	NA	100	NC	100
Cobalt	96	3.11	6	3.31	6
Fluoride	58	97.1 J	4000	80.7	4000
Lead	71	1.91 J	15	2.36	15
Lithium	83	5.52 J	40	5.73	40
Mercury	0	NA	2	NC	2
Molybdenum	21	0.375 J	100	0.375	100
Radium 226/228	75	8.12	5.0	6.29	6.29
Selenium	0	NA	50	NC	50
Thallium	33	0.213 J	2	0.213	2

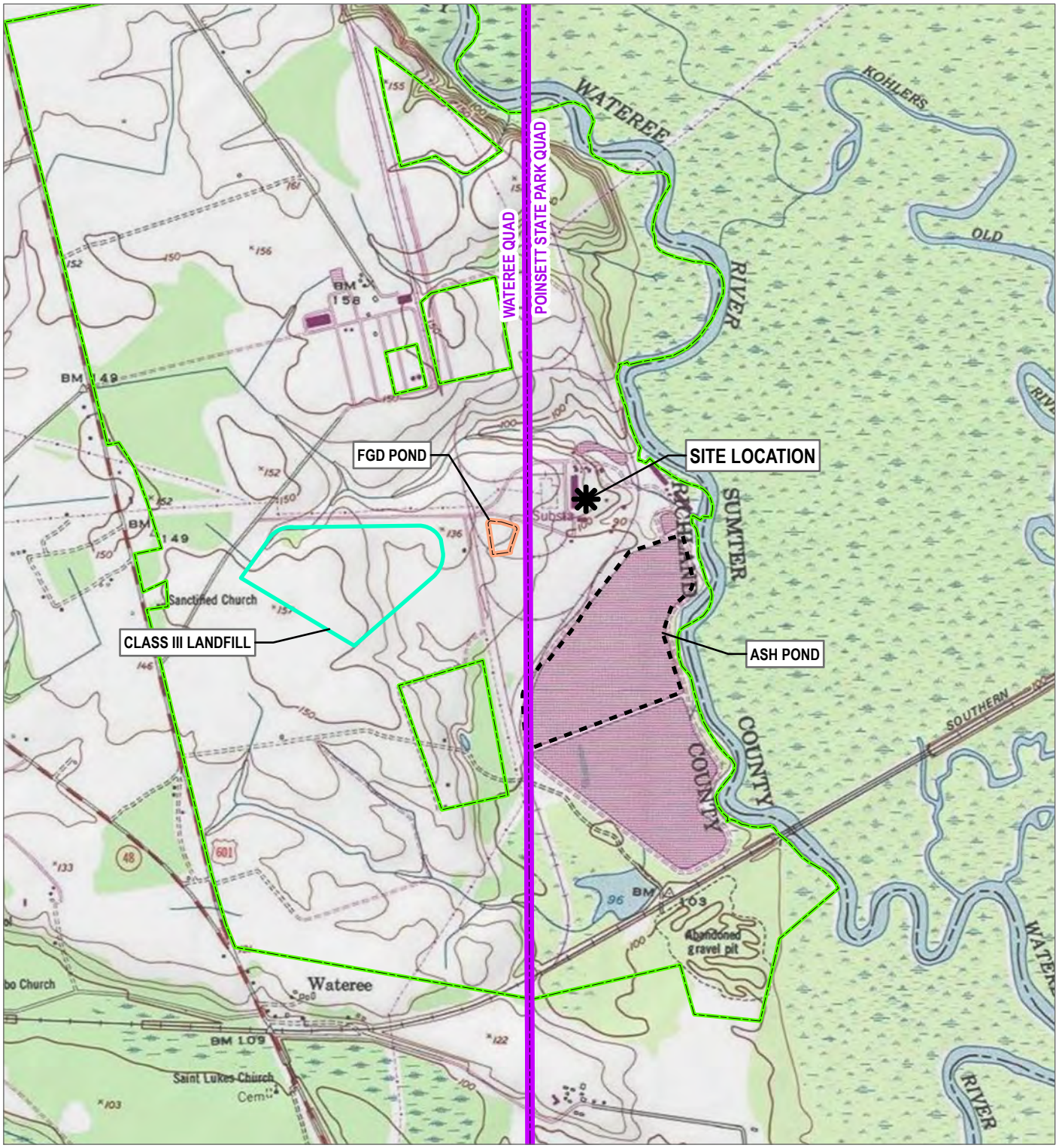
Radium 226/288 concentrations expressed in pCi/L (pico-Curies/liter)
Background and GWPS concentrations (except Radium 226/228) expressed in µg/L
J Quantitation is approximate due to limitations identified during data validation.
NA not analyzed
NC not calculated – 100% nondetect
[1] 40 CFR 257.95(h)

Section 3
References

TRC 2022. Technical Memorandum to DESC. *Evaluation of CCR Well Network – Wateree Station Class III Industrial Landfill*. TRC, July 8, 2022

TRC 2023. Class III Landfill Groundwater Monitoring System Certification per 40 CFR 257.91 (f), Wateree Generating Station, Eastover, South Carolina. TRC, September 29, 2023.

Figures



LEGEND

- SITE LOCATION
- USGS 24K QUAD BOUNDARY
- CLASS III LANDFILL BOUNDARY
- ASH POND
- FGD POND
- PROPERTY BOUNDARY

BASE MAP: USA TOPO MAPS MAP SERVICE
DATA SOURCES: TRC

N

0 1,000 2,000
FEET
1:24,000 1" = 2,000'

PROJECT: DESC WATEREE STATION
CLASS III LANDFILL
EASTOVER, SOUTH CAROLINA

TITLE: SITE LOCATION MAP

DRAWN BY:	L. LILL	PROJ. NO.:	416559.0005.0000
CHECKED BY:	J. YONTS		
APPROVED BY:	R. MAYER		FIGURE 1
DATE:	SEPTEMBER 2023		

TRC
50 INTERNATIONAL DRIVE
PATEWOOD PLAZA THREE, SUITE 150
GREENVILLE, SC 29615
PHONE: 864.281.0030

FILE: 2023_FIGURES

LEGEND

- CCR BACKGROUND MONITORING WELL
- CCR DOWNGRADIENT MONITORING WELL
- EVENT PIEZOMETER
- CLASS III LANDFILL BOUNDARY
- PROPERTY BOUNDARY

NOTES:

1. AERIAL IMAGE FROM ESRI WORLD IMAGERY DATED APRIL, 2021.

1:4,800
1" = 400'
0 200 400 FEET

PROJECT:
DESC WATEREE STATION
CLASS III LANDFILL
EASTOVER, SOUTH CAROLINA

TITLE:
CCR RULE COMPLIANCE
MONITORING WELL NETWORK

DRAWN BY:	L. LILL	PROJ. NO.:	416559.0005.0000
CHECKED BY:	J. YONTS		**FIGURE 2**
APPROVED BY:	R. MAYER		
DATE:	SEPTEMBER 2023		

TRC
50 INTERNATIONAL DRIVE
PATEWOOD PLAZA THREE, SUITE 150
GREENVILLE, SC 29615
PHONE: 864.281.0030

FILE: 2023_Figures.aprx

Coordinate System: NAD 1983 StatePlane South Carolina FIPS 3900 Feet Map Rotation: 0
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Layout Name: Fig02_Wateree_CCR_Landfill_SiteLayout

MW-BG-74
123.71

MW-BG-73*
134.82

AS-LF-03
119.03

MW-FGD-01
115.19

MW-LF-01*
123.75

MW-LF-01D
124.13

MW-LF-11
113.49

MW-LF-10A
112.44

MW-LF-22
113.30

AS-LF-02
116.26

MW-LF-12
113.80

MW-LF-08
112.62

AS-LF-01
117.21

MW-LF-07
116.12

MW-LF-06
114.88

122
120
118
116
114
124
122
120
118
116
114
116

LEGEND

- CCR BACKGROUND MONITORING WELL
- CCR DOWNGRADIENT MONITORING WELL
- EVENT PIEZOMETER
- CLASS III LANDFILL BOUNDARY
- PROPERTY BOUNDARY
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- WATER TABLE ELEVATION IN FEET ABOVE MEAN SEA LEVEL (2' CONTOUR INTERVALS) - DASHED WHERE INFERRED
- **114.88** WATER ELEVATION (FT. MSL)

NOTES:

1. AERIAL IMAGE FROM ESRI WORLD IMAGERY DATED APRIL, 2021.
2. * - WATER LEVELS NOT USED TO CREATE CONTOURS.

N

1:4,800
1" = 400'

0 200 400
FEET

PROJECT:
DESC WATEREE STATION
CLASS III LANDFILL
EASTOVER, SOUTH CAROLINA

TITLE:
GROUNDWATER POTENTIOMETRIC MAP - MARCH 10, 2023

DRAWN BY:	L. LILL	PROJ. NO.:	416559.0005.0000
CHECKED BY:	J. YONTS		**FIGURE 3**
APPROVED BY:	R. MAYER		
DATE:	SEPTEMBER 2023		

TRC
50 INTERNATIONAL DRIVE
PATEWOOD PLAZA THREE, SUITE 150
GREENVILLE, SC 29615
PHONE: 864.281.0030

FILE: 2023_Figures.aprx

Coordinate System: NAD 1983 StatePlane South Carolina FIPS 3900 Feet. Map Rotation: 0
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Appendix A
Baseline Data

Baseline Data - Appendix III Constituents

WELL	DATE	BORON (µg/L)	CALCIUM (µg/L)	CHLORIDE (mg/L)	FLUORIDE (mg/L)	FIELD pH (S.U.)	SULFATE (mg/L)	TDS (mg/L)
BACKGROUND WELLS								
MW-LF-01D	1/12/2023	**12.7 J**	**5080**	**7.78**	**0.0811 J**	**5.69**	**12.0**	**46.0**
	2/14/2023	**9.94 J**	**3870**	**7.17**	< 0.0330	**5.43**	**4.73**	**34.0**
	3/13/2023	**9.54 J**	**1050**	**7.18**	< 0.0330	**4.65**	**0.757**	**27.0**
	4/11/2023	**9.38 J**	**985**	**7.13**	< 0.0330	**4.70**	**0.406**	**4.00 J**
	5/16/2023	**8.59 J**	**846**	**7.11**	< 0.0330	**4.51**	**0.887**	**14.0**
	6/12/2023	**7.54**	**794**	**7.03**	< 0.0330	**4.68**	**1.46**	**18.0**
	7/18/2023	**7.97 J**	**780**	**7.03**	< 0.0330	**4.44**	**0.475**	**3.00**
	8/17/2023	**6.56 J**	**714**	**7.11**	< 0.0330	**4.38**	**1.00**	**9.00**
MW-BG-74	1/12/2023	**11.2 J**	**3680**	**4.24**	**0.0796 J**	**5.58**	**5.16**	**73.0**
	2/13/2023	**9.20 J**	**4150**	**4.26**	**0.0882 J**	**5.52**	**6.26**	**32.0**
	3/13/2023	**8.99 J**	**3340**	**4.13**	**0.0971 J**	**5.50**	**4.75**	**30.0**
	4/10/2023	**9.32 J**	**2880**	**4.19**	**0.0579**	**5.45**	**3.75**	**5.00 J**
	5/15/2023	**7.93 J**	**2760**	**4.09**	**0.0460 J**	**5.29**	**2.25**	**19.0**
	6/12/2023	**8.55**	**2520**	**4.14**	**0.0402 J**	**5.37**	**3.06**	**23.0**
	7/17/2023	**7.14 J**	**2250**	**4.08**	**0.0403 J**	**5.05**	**1.88**	**6.00**
	8/18/2023	**6.36 J**	**1910**	**4.06**	< 0.0330	**5.18**	**1.49**	**5.00**
AS-LF-03	1/12/2023	**8.33 J**	**796**	**5.77**	**0.0589 J**	**4.41**	**0.374 J**	< 2.38
	2/13/2023	**6.34 J**	**661**	**6.07**	< 0.0330	**4.26**	**0.375 J**	**30.0**
	3/15/2023	**5.24 J**	**760**	**6.33**	**0.0414 J**	**4.30**	**0.397 J**	**19.0**
	4/10/2023	**7.33 J**	**721**	**5.88**	< 0.0330	**4.34**	**0.251 J**	< 2.38
	5/15/2023	**7.14 J**	**682**	**6.07**	**0.0386 J**	**4.32**	**0.859**	**5.00 J**
	6/12/2023	**6.65 J**	**732**	**6.10**	**0.0460 J**	**4.17**	**1.14**	**8.00**
	7/18/2023	**6.67 J**	**797**	**5.94**	**0.0340 J**	**4.29**	**0.474**	< 2.38
	8/17/2023	**5.38 J**	**799**	**6.31**	**0.0432 J**	**4.09**	**1.37**	**14.0**

Orange highlighted cells were removed as outliers

Baseline Data - Appendix IV Constituents

WELL	DATE	ANTIMONY (µg/L)	ARSENIC (µg/L)	BARIUM (µg/L)	BERYLLIUM (µg/L)	CADMIUM (µg/L)	CHROMIUM (µg/L)	COBALT (µg/L)	FLUORIDE (mg/L)	LEAD (µg/L)	LITHIUM (µg/L)	MERCURY (µg/L)	MOLYBDENUM (µg/L)	RADIUM-226/228 (pCi/L)	SELENIUM (µg/L)	THALLIUM (µg/L)
BACKGROUND WELLS																
MW-LF-01D	1/12/2023	< 0.600	< 1.66	**81.0**	**0.405 J**	< 0.0300	< 1.00	**2.08**	**0.0811 J**	**0.612 J**	**3.89 J**	< 0.0670	**0.332 J**	**1.77 J**	< 1.50	**0.173 J**
	2/14/2023	< 0.600	< 1.66	**106**	**0.444 J**	< 0.0300	< 1.00	**2.89**	< 0.0330	< 0.500	**4.88 J**	< 0.0670	< 0.342	**1.52 J**	< 1.50	**0.213 J**
	3/13/2023	< 0.600	< 1.66	**99.1**	**0.618**	< 0.0300	< 1.00	**3.03**	< 0.0330	**0.814 J**	**5.52 J**	< 0.0670	< 0.167	**2.50 J**	< 1.50	**0.213 J**
	4/11/2023	< 0.600	< 1.66	**99.3**	**0.723**	< 0.0300	< 1.00	**3.11**	< 0.0330	**0.820 J**	**5.26 J**	< 0.0670	< 0.167	< 2.06	< 1.50	**0.213 J**
	5/16/2023	< 0.600	< 1.66	**98.2**	**0.788**	< 0.0300	< 1.00	**2.99**	< 0.0330	**0.851 J**	**5.24 J**	< 0.0670	< 0.167	**1.93 J**	< 1.50	**0.222 J**
	6/12/2023	< 0.600	< 1.66	**101**	**0.739**	< 0.0300	< 1.00	**3.06**	< 0.0330	**0.937 J**	**5.02 J**	< 0.0670	< 0.227	< 2.07	< 1.50	**0.160 J**
	7/18/2023	< 0.600	< 1.66	**110 J+**	**0.748**	< 0.0300	< 1.00	**2.92**	< 0.0330	**1.06 J**	**5.15 J**	< 0.0670	< 0.167	**3.00**	< 1.50	**0.188 J**
	8/17/2023	< 0.600	< 1.66	**97.8**	**0.852**	**0.0350 J**	< 1.00	**2.88**	< 0.0330	**0.955 J**	**4.86 J**	< 0.0670	< 0.167	< 2.44	< 1.50	**0.187 J**
MW-BG-74	1/12/2023	< 0.600	< 1.66	**38.8**	**0.239 J**	< 0.0300	< 1.00	< 0.781	**0.0796 J**	**2.21**	**2.90 J**	< 0.0670	**0.318 J**	**4.05 J**	< 1.50	< 0.125
	2/13/2023	< 0.600	< 1.66	**42.8**	< 0.200	< 0.0300	< 1.00	**0.604 J**	**0.0882 J**	< 0.500	< 2.00	< 0.0670	< 0.337	**1.73 J**	< 1.50	< 0.125
	3/13/2023	< 0.600	< 1.66	**41.0**	< 0.200	< 0.0300	< 1.00	**0.729 J**	**0.0971 J**	< 0.500	< 2.00	< 0.0670	**0.375 J**	**2.34 J**	< 1.50	< 0.125
	4/10/2023	< 0.600	< 1.66	**41.4**	< 0.200	< 0.0300	< 1.00	**0.841 J**	**0.0579 J**	< 0.500	**2.13 J**	< 0.0980	**0.230 J**	< 3.01	< 1.50	< 0.125
	5/15/2023	< 0.600	< 1.66	**41.7**	< 0.200	< 0.0300	< 1.00	**0.929 J**	**0.0460 J**	< 0.500	< 2.00	< 0.0670	< 0.167	**2.07 J**	< 1.50	< 0.125
	6/12/2023	< 0.600	< 1.66	**43.7**	< 0.200	< 0.0300	< 1.00	**1.28**	**0.0402 J**	< 0.500	**2.17 J**	< 0.0670	< 0.179	< 0.929	< 1.50	< 0.125
	7/17/2023	< 0.600	< 1.66	**42.2 J+**	< 0.200	< 0.0300	< 1.00	**0.825 J**	**0.0403 J**	**0.515 J**	< 2.00	< 0.0670	**0.203 J**	**0.732 J**	< 1.50	< 0.125
	8/18/2023	< 0.600	< 1.66	**41.2**	< 0.200	< 0.0300	< 1.00	**1.03**	< 0.0330	< 0.500	**2.19 J**	< 0.0670	< 0.167	< 0.811	< 1.50	< 0.125
AS-LF-03	1/12/2023	< 0.600	< 1.66	**126**	**0.517**	< 0.0300	< 1.00	**1.78**	**0.0589 J**	**2.25**	**4.23 J**	< 0.0670	< 0.167	**5.79**	< 1.50	< 0.125
	2/13/2023	< 0.600	< 1.66	**123**	**0.395 J**	< 0.0300	< 1.00	**1.63**	< 0.0330	**1.83 J**	**3.48 J**	< 0.0670	< 0.167	**4.40**	< 1.50	< 0.125
	3/15/2023	< 0.600	< 1.66	**121**	**0.354 J**	< 0.0300	< 1.00	**1.67**	**0.0414 J**	**1.91 J**	**3.79 J**	< 0.0670	< 0.167	**3.51 J**	< 1.50	< 0.125
	4/10/2023	< 0.600	< 1.66	**121**	**0.395 J**	< 0.0300	< 1.00	**1.65**	< 0.0330	**1.85 J**	**3.70 J**	< 0.101	< 0.167	**5.45**	< 1.50	< 0.125
	5/15/2023	< 0.600	< 1.66	**115**	**0.374 J**	< 0.0300	< 1.00	**1.67**	**0.0386 J**	**1.82 J**	**3.52 J**	< 0.0670	< 0.167	**2.32 J**	< 1.50	< 0.125
	6/12/2023	< 0.600	< 1.66	**130**	**0.353 J**	< 0.0300	< 1.00	**1.82**	**0.0460 J**	**2.06**	**3.81 J**	< 0.0670	< 0.167	**4.62**	< 1.50	< 0.125
	7/18/2023	< 0.600	< 1.66	**139 J+**	**0.446 J**	0.0400 J	< 1.00	**1.82**	**0.0340 J**	**2.09**	**3.60 J**	< 0.0670	< 0.167	**8.12**	< 1.50	< 0.125
	8/17/2023	< 0.600	< 1.66	**131**	**0.389 J**	< 0.0300	< 1.00	**1.91**	**0.0432 J**	**2.09**	**3.87 J**	< 0.0670	< 0.167	< 6.18 J	< 1.50	< 0.125

Appendix B
Summary of General Statistics

General Statistics on Uncensored Full Data (Appendix III Constituents)

Date/Time of Computation ProUCL 5.2 10/18/2023 4:12:42 PM

User Selected Options

From File Wateree_2023Q3_Baseline_ProUCL_Input.xls

Full Precision OFF

From File: Wateree_2023Q3_Baseline_ProUCL_Input.xls

General Statistics for Uncensored Data Sets

Variable	NumObs	# Missing	Minimum	Maximum	Mean	Geo-Mean	SD	SEM	MAD/0.675	Skewness	CV
Boron	24	0	5.24	12.7	8.083	7.902	1.78	0.363	1.913	0.673	0.22
Calcium	24	0	661	5080	1815	1397	1377	281.1	322.5	0.97	0.759
Chloride	24	0	4.06	7.78	5.8	5.652	1.295	0.264	1.557	-0.269	0.223
Field pH	24	0	4.09	5.69	4.817	4.788	0.541	0.11	0.586	0.305	0.112
Sulfate	24	0	0.251	12	2.315	1.337	2.718	0.555	1.265	2.266	1.174

Percentiles for Uncensored Data Sets

Variable	NumObs	# Missing	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
Boron	24	0	6.346	6.614	6.665	7.95	9.23	9.344	9.82	11.01	12.36
Calcium	24	0	716.1	748.8	775	915.5	2790	3064	3813	4108	4866
Chloride	24	0	4.102	4.17	4.228	6.07	7.05	7.11	7.158	7.179	7.642
Field pH	24	0	4.269	4.312	4.335	4.665	5.385	5.438	5.514	5.571	5.665
Sulfate	24	0	0.382	0.447	0.475	1.255	3.233	4.142	5.037	6.095	10.68

General Statistics on Censored Data (Appendix III Constituents)

Date/Time of Computation ProUCL 5.2 10/18/2023 4:13:42 PM

User Selected Options

From File Wateree_2023Q3_Baseline_ProUCL_Input.xls

Full Precision OFF

From File: Wateree_2023Q3_Baseline_ProUCL_Input.xls

General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method

Variable	NumObs	# Missing	Num Ds	NumNDs	% NDs	Min ND	Max ND	KM Mean	KM Var	KM SD	KM CV
Fluoride	24	0	14	10	41.67%	0.033	0.033	0.0468	3.7628E-4	0.0194	0.415
TDS	24	0	21	3	12.50%	2.38	2.38	17.96	278.1	16.68	0.928

General Statistics for Raw Data Sets using Detected Data Only

Variable	NumObs	# Missing	Minimum	Maximum	Mean	Median	Var	SD	MAD/0.675	Skewness	CV
Fluoride	14	0	0.034	0.0971	0.0566	0.046	4.4460E-4	0.0211	0.0143	0.865	0.372
TDS	21	0	3	73	20.19	18	292.1	17.09	17.79	1.601	0.846

Percentiles using all Detects (Ds) and Non-Detects (NDs)

Variable	NumObs	# Missing	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
Fluoride	24	0	0.033	0.033	0.033	0.0394	0.049	0.0583	0.0807	0.0871	0.0951
TDS	24	0	2.566	4.6	5	14	27.75	30	33.4	44.2	66.79

General Statistics on Uncensored Full Data (Appendix IV Constituents)

Date/Time of Computation	ProUCL 5.2 11/8/2023 10:45:01 AM
User Selected Options	
From File	Wateree_CIII_Landfill_Data_Summary_Table_with DV_h.xls
Full Precision	OFF

From File: Wateree_CIII_Landfill_Data_Summary_Table_with DV_h.xls

General Statistics for Uncensored Dataset

Variable	NumObs	# Missing	Minimum	Maximum	Mean	Geo-Mean	SD	SEM	MAD/0.675	Skewness	CV
Barium	24	0	38.8	139	88.8	80.17	36.41	7.432	37.51	-0.369	0.41

Percentiles for Uncensored Dataset

Variable	NumObs	# Missing	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
Barium	24	0	41.26	42	42.65	99.2	121	121.8	128.8	130.9	137.2

General Statistics on Uncensored Data

Date/Time of Computation ProUCL 5.2 11/8/2023 11:16:38 AM

User Selected Options

From File Wateree_CIII_Landfill_Data_Summary_Table_with DV_h.xls

Full Precision OFF

From File: Wateree_CIII_Landfill_Data_Summary_Table_with DV_h.xls

General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method

Variable	NumObs	# Missing	Num Ds	NumNDs	% NDs	Min ND	Max ND	KM Mean	KM Var	KM SD	KM CV
Beryllium	24	0	17	7	29.17%	0.2	0.2	0.424	0.0441	0.21	0.495
Cobalt	24	0	23	1	4.17%	0.781	0.781	1.826	0.723	0.851	0.466
Fluoride	24	0	14	10	41.67%	0.033	0.033	0.0468	3.7628E-4	0.0194	0.415
Lead	24	0	17	7	29.17%	0.5	0.5	1.174	0.456	0.675	0.575
Lithium	24	0	20	4	16.67%	2	2	3.634	1.431	1.196	0.329
Radium-226/228	24	0	18	6	25.00%	0.811	3.01	2.89	3.775	1.943	0.672

General Statistics for Raw Data Sets using Detected Data Only (Appendix IV Constituents)

Variable	NumObs	# Missing	Minimum	Maximum	Mean	Median	Var	SD	MAD/0.675	Skewness	CV
Beryllium	17	0	0.239	0.852	0.516	0.444	0.0351	0.187	0.133	0.544	0.363
Cobalt	23	0	0.604	3.11	1.876	1.78	0.725	0.852	1.262	0.17	0.454
Fluoride	14	0	0.034	0.0971	0.0566	0.046	4.4460E-4	0.0211	0.0143	0.865	0.372
Lead	17	0	0.515	2.25	1.451	1.82	0.404	0.635	0.638	-0.139	0.438
Lithium	20	0	2.13	5.52	3.961	3.84	1.133	1.064	1.453	-0.311	0.269
Radium-226/228	18	0	0.732	8.12	3.446	2.75	3.888	1.972	1.668	0.858	0.572

Percentiles using all Detects (Ds) and Non-Detects (NDs)

Variable	NumObs	# Missing	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
Beryllium	24	0	0.2	0.2	0.2	0.392	0.542	0.66	0.745	0.782	0.837
Cobalt	24	0	0.794	0.894	1.005	1.725	2.883	2.902	3.018	3.056	3.099
Fluoride	24	0	0.033	0.033	0.033	0.0394	0.049	0.0583	0.0807	0.0871	0.0951
Lead	24	0	0.5	0.5	0.5	0.894	1.865	1.97	2.09	2.192	2.241
Lithium	24	0	2	2.154	2.185	3.745	4.865	4.936	5.213	5.257	5.46
Radium-226/228	24	0	1.106	1.754	1.89	2.39	4.138	4.488	5.688	6.122	7.674

Appendix C
Background Evaluation ProUCL Outputs

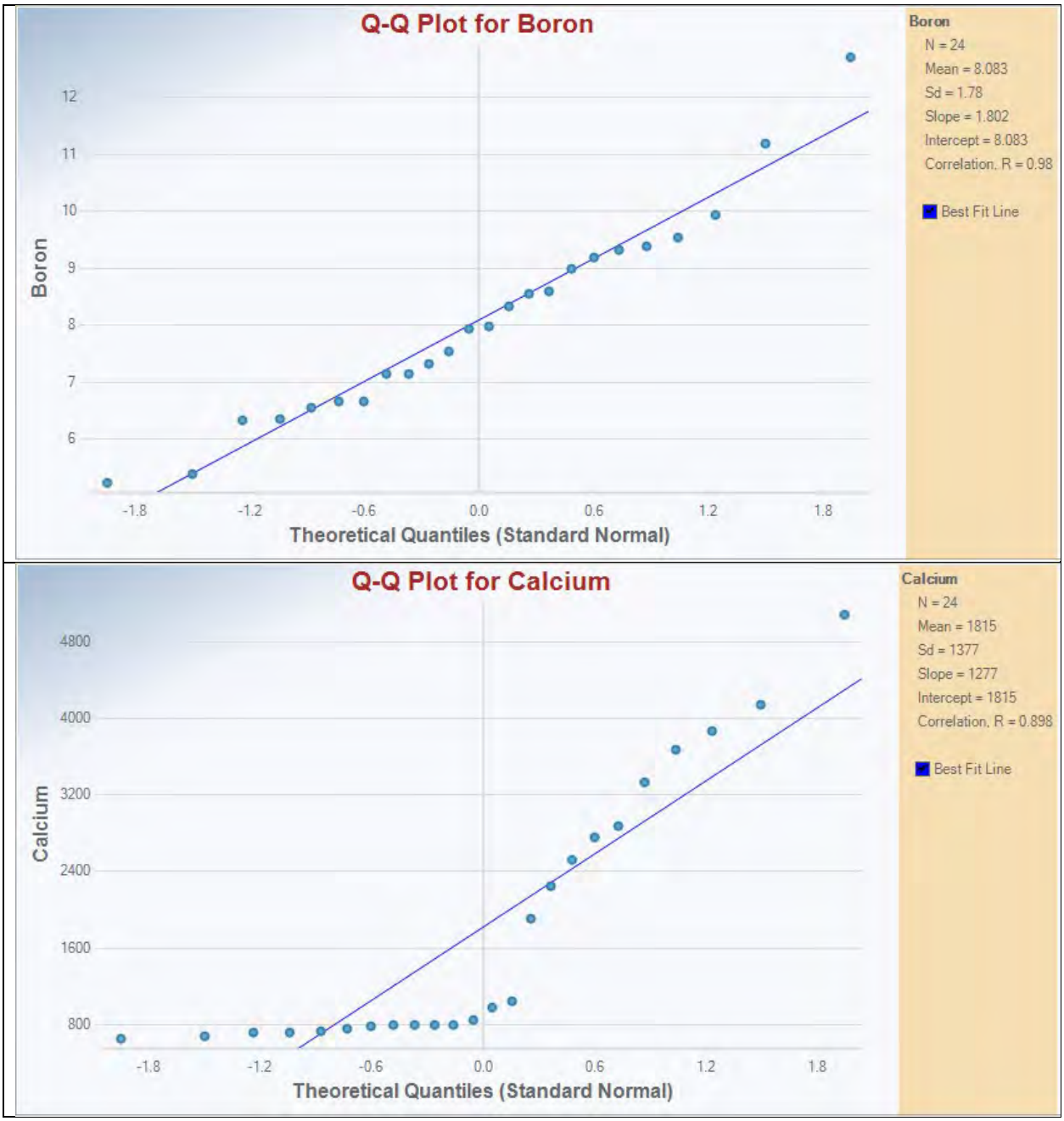
Appendix III Constituents

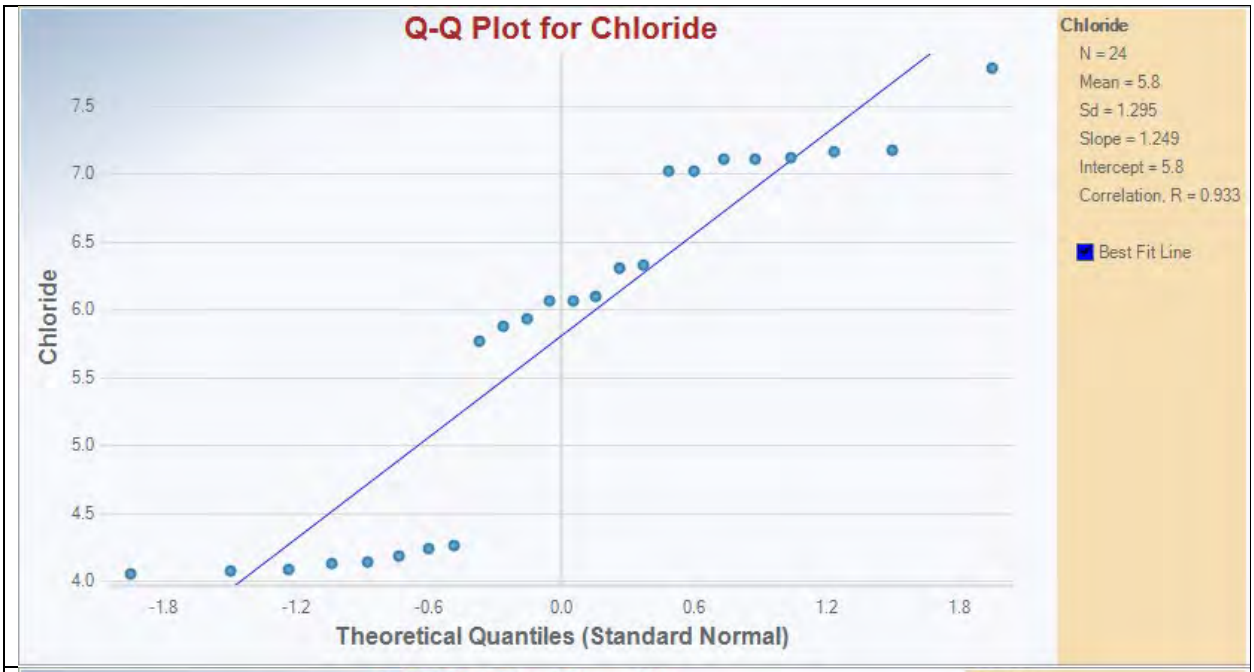
- Outliers
- Background Threshold Values

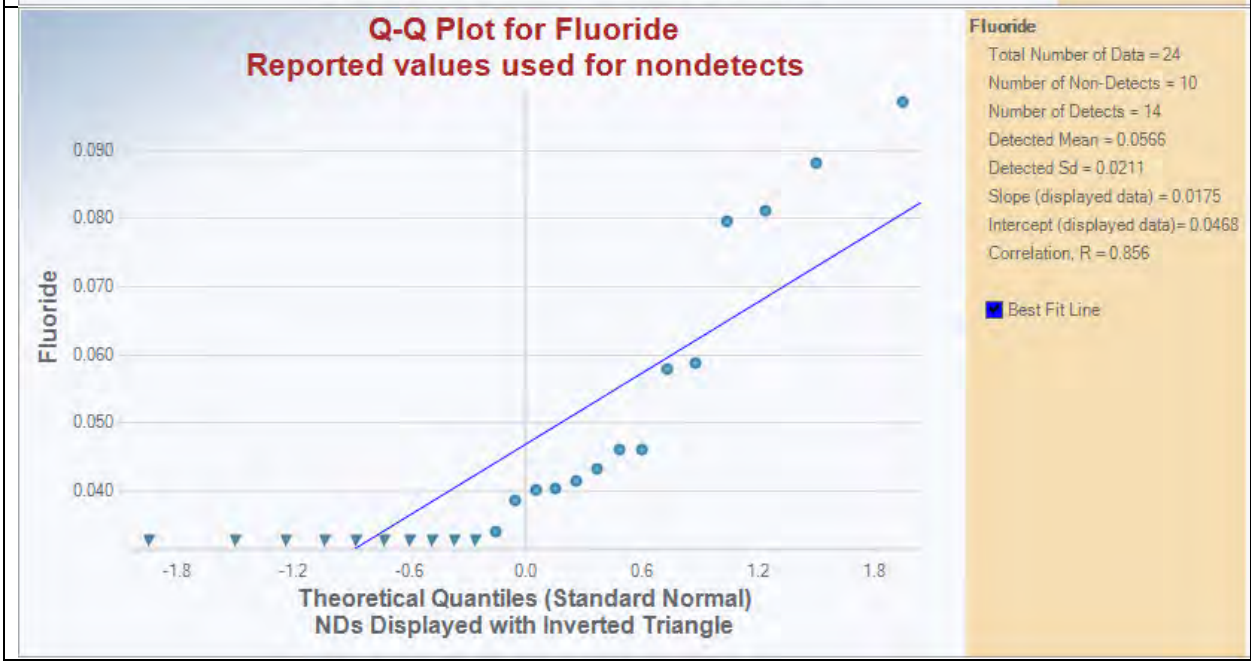
Appendix IV Constituents

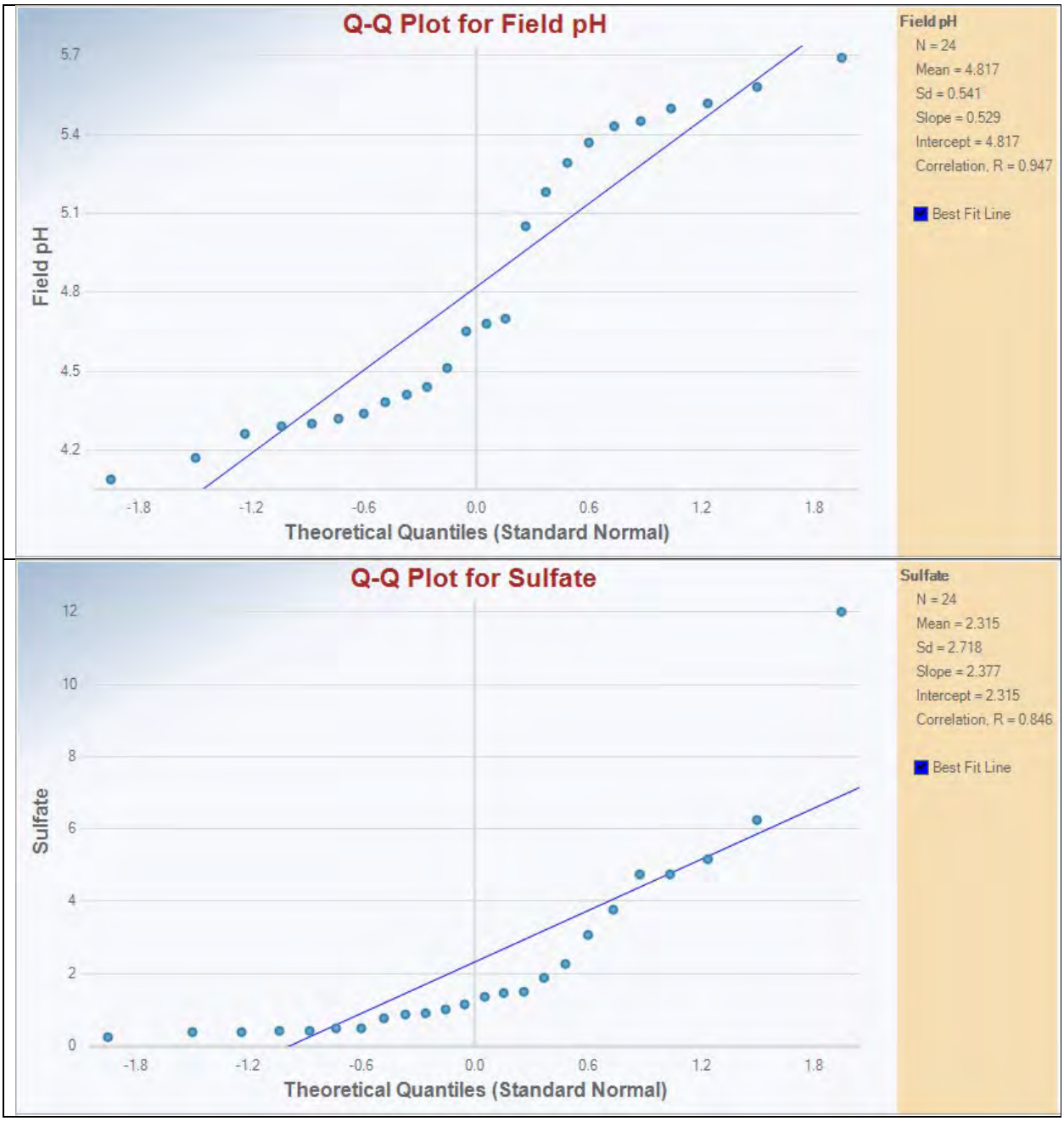
- Outliers
- Background Threshold Values

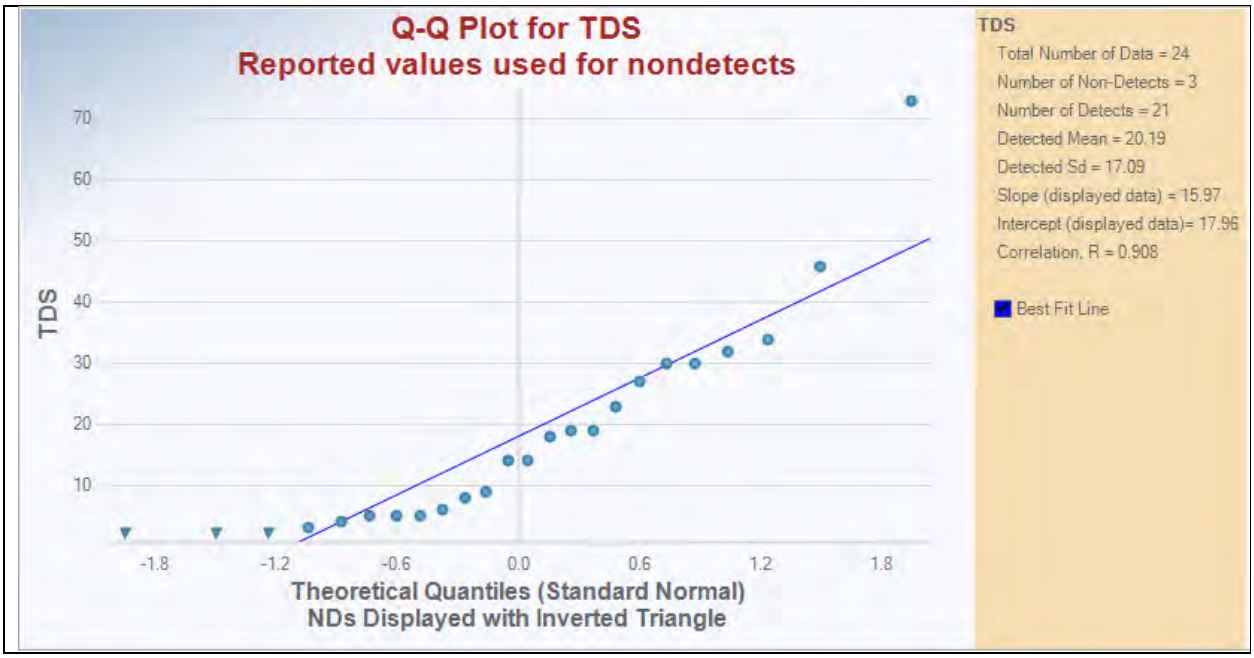
Appendix III Constituents


Q-Q Plot for Boron
Boron
N = 24
Mean = 8.083
Sd = 1.78
Slope = 1.802
Intercept = 8.083
Correlation, R = 0.98
Best Fit Line
Boron
12
11
10
9
8
7
6
-1.8
-1.2
-0.6
0.0
0.6
1.2
1.8
Theoretical Quantiles (Standard Normal)
Q-Q Plot for Calcium
Calcium
N = 24
Mean = 1815
Sd = 1377
Slope = 1277
Intercept = 1815
Correlation, R = 0.898
Best Fit Line
Calcium
4800
4000
3200
2400
1600
800
-1.8
-1.2
-0.6
0.0
0.6
1.2
1.8
Theoretical Quantiles (Standard Normal)


Q-Q Plot for Chloride
Chloride
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
-1.8
-1.2
-0.6
0.0
0.6
1.2
1.8
Theoretical Quantiles (Standard Normal)
Chloride
N = 24
Mean = 5.8
Sd = 1.295
Slope = 1.249
Intercept = 5.8
Correlation, R = 0.933
Best Fit Line


Q-Q Plot for Fluoride
Reported values used for nondetects
Fluoride
0.090
0.080
0.070
0.060
0.050
0.040
-1.8
-1.2
-0.6
0.0
0.6
1.2
1.8
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle
Fluoride
Total Number of Data = 24
Number of Non-Detects = 10
Number of Detects = 14
Detected Mean = 0.0566
Detected Sd = 0.0211
Slope (displayed data) = 0.0175
Intercept (displayed data)= 0.0468
Correlation, R = 0.856
Best Fit Line


Q-Q Plot for Field pH
Field pH
N = 24
Mean = 4.817
Sd = 0.541
Slope = 0.529
Intercept = 4.817
Correlation, R = 0.947
Best Fit Line
Field pH
5.7
5.4
5.1
4.8
4.5
4.2
-1.8
-1.2
-0.6
0.0
0.6
1.2
1.8
Theoretical Quantiles (Standard Normal)
Q-Q Plot for Sulfate
Sulfate
N = 24
Mean = 2.315
Sd = 2.718
Slope = 2.377
Intercept = 2.315
Correlation, R = 0.846
Best Fit Line
Sulfate
12
10
8
6
4
2
0
-1.8
-1.2
-0.6
0.0
0.6
1.2
1.8
Theoretical Quantiles (Standard Normal)


Q-Q Plot for TDS
Reported values used for nondetects
TDS
70
60
50
40
30
20
10
-1.8
-1.2
-0.6
0.0
0.6
1.2
1.8
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle
TDS
Total Number of Data = 24
Number of Non-Detects = 3
Number of Detects = 21
Detected Mean = 20.19
Detected Sd = 17.09
Slope (displayed data) = 15.97
Intercept (displayed data)= 17.96
Correlation, R = 0.908
Best Fit Line

Outlier Tests for Selected Uncensored Variables

User Selected Options

Date/Time of Computation	ProUCL 5.2 10/4/2023 9:41:38 AM
From File	Wateree_2023Q3_Baseline_ProUCL_Input.xls
Full Precision	OFF

Dixon's Outlier Test for Sulfate

Number of Observations = 24

10% critical value: 0.367

5% critical value: 0.413

1% critical value: 0.497

1. Observation Value 12 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.588

For 10% significance level, 12 is an outlier.

For 5% significance level, 12 is an outlier.

For 1% significance level, 12 is an outlier.

2. Observation Value 0.251 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.025

For 10% significance level, 0.251 is not an outlier.

For 5% significance level, 0.251 is not an outlier.

For 1% significance level, 0.251 is not an outlier.

Outlier Tests for Selected Variables excluding nondetects

User Selected Options

Date/Time of Computation	ProUCL 5.2 10/4/2023 9:49:23 AM
From File	Wateree_2023Q3_Baseline_ProUCL_Input.xls
Full Precision	OFF

Dixon's Outlier Test for TDS

Total N = 24
Number NDs = 3
Number Detects = 21
10% critical value: 0.391
5% critical value: 0.44
1% critical value: 0.524
Note: NDs excluded from Outlier Test

1. Data Value 73 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.574

For 10% significance level, 73 is an outlier.
For 5% significance level, 73 is an outlier.
For 1% significance level, 73 is an outlier.

2. Data Value 3 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.065

For 10% significance level, 3 is not an outlier.
For 5% significance level, 3 is not an outlier.
For 1% significance level, 3 is not an outlier.

Background Statistics for Uncensored Full Data Sets

User Selected Options

Date/Time of Computation	ProUCL 5.2 10/18/2023 2:53:39 PM
From File	P:\Clients\Dominion\South Carolina Sites\5_Wateree Station SC\Class 3 Landfill - CCR\2023\2023 Q3\Q3 New Baseline\Without MW-LF-01\Wateree_2023Q3_Baseline_ProUCL_Input_Outliers rem.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	28
Number of Bootstrap Operations	2000

Boron

General Statistics

Total Number of Observations	24	Number of Distinct Observations	23
Minimum	5.24	First Quartile	6.665
Second Largest	11.2	Median	7.95
Maximum	12.7	Third Quartile	9.23
Mean	8.083	SD	1.78
Coefficient of Variation	0.22	Skewness	0.673
Mean of logged Data	2.067	SD of logged Data	0.217

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.309	d2max (for USL)	2.644

Normal GOF Test

Shapiro Wilk Test Statistic	0.962	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.884	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.0815	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.205	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	12.19		90% Percentile (z)	10.36
	95% UPL (t)	11.2		95% Percentile (z)	11.01
	95% UPL for Next 28 Observations	**13.98**		99% Percentile (z)	12.22
	95% UPL for Mean of 28 Observations	8.931		95% USL	12.79

Gamma GOF Test

A-D Test Statistic	0.186	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.742	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0818	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.178	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	22.27	k star (bias corrected MLE)	19.51
Theta hat (MLE)	0.363	Theta star (bias corrected MLE)	0.414
nu hat (MLE)	1069	nu star (bias corrected)	936.6
MLE Mean (bias corrected)	8.083	MLE Sd (bias corrected)	1.83

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	11.39			90% Percentile	10.5
95% Hawkins Wixley (HW) Approx. Gamma UPL	11.43			95% Percentile	11.31
95% WH UPL for Next 28 Observations	15.19			99% Percentile	12.94
95% HW UPL for Next 28 Observations	15.41				
95% WH Approx. Gamma UTL with 95% Coverage	12.67		95% HW Approx. Gamma UTL with	95% Coverage	12.75
95% WH USL	13.48			95% HW USL	13.6

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.983	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.93	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.0745	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.162	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	13.04	90% Percentile (z)	10.43
95% UPL (t)	11.55	95% Percentile (z)	11.29
95% UPL for Next 28 Observations	16.2	99% Percentile (z)	13.09
95% UPL for Mean of 28 Observations	8.763	95% USL	14.02

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	24	95% UTL with 95% Coverage	12.7
Approx, f used to compute achieved CC	1.263	Approximate Actual Confidence Coefficient achieved by UTL	0.708
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	12.7	95% BCA Bootstrap UTL with 95% Coverage	12.7
95% UPL	12.33	90% Percentile	9.82
90% Chebyshev UPL	13.53	95% Percentile	11.01
95% Chebyshev UPL	16	99% Percentile	12.36
95% USL	12.7		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Calcium

General Statistics

Total Number of Observations	24	Number of Distinct Observations	24
Minimum	661	First Quartile	775
Second Largest	4150	Median	915.5
Maximum	5080	Third Quartile	2790
Mean	1815	SD	1377
Coefficient of Variation	0.759	Skewness	0.97
Mean of logged Data	7.242	SD of logged Data	0.724

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.309	d2max (for USL)	2.644

Normal GOF Test

Shapiro Wilk Test Statistic	0.796	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.884	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.294	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.205	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	4994	90% Percentile (z)	3579
95% UPL (t)	4223	95% Percentile (z)	4080
95% UPL for Next 28 Observations	6375	99% Percentile (z)	5018
95% UPL for Mean of 28 Observations	2471	95% USL	5455

Gamma GOF Test

A-D Test Statistic	1.997	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.755	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.267	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.18	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.063	k star (bias corrected MLE)	1.833
Theta hat (MLE)	879.9	Theta star (bias corrected MLE)	990.3
nu hat (MLE)	99.01	nu star (bias corrected)	87.96
MLE Mean (bias corrected)	1815	MLE Sd (bias corrected)	1341

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	4556	90% Percentile	3603

95% Hawkins Wixley (HW) Approx. Gamma UPL	4633	95% Percentile	4427
95% WH UPL for Next 28 Observations	9406	99% Percentile	6262
95% HW UPL for Next 28 Observations	10285		
95% WH Approx. Gamma UTL with 95% Coverage	6029	95% HW Approx. Gamma UTL with 95% Coverage	6281
95% WH USL	7046	95% HW USL	7456

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.819	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.93	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.256	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.162	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	7435	90% Percentile (z)	3534
95% UPL (t)	4957	95% Percentile (z)	4597
95% UPL for Next 28 Observations	15369	99% Percentile (z)	7529
95% UPL for Mean of 28 Observations	1973	95% USL	9475

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	24	95% UTL with 95% Coverage	5080
Approx, f used to compute achieved CC	1.263	Approximate Actual Confidence Coefficient achieved by UTL	0.708
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	5080	95% BCA Bootstrap UTL with 95% Coverage	5080
95% UPL	4848	90% Percentile	3813
90% Chebyshev UPL	6031	95% Percentile	4108
95% Chebyshev UPL	7940	99% Percentile	4866
95% USL	**5080**		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Chloride

General Statistics

Total Number of Observations	24	Number of Distinct Observations	21
Minimum	4.06	First Quartile	4.228
Second Largest	7.18	Median	6.07
Maximum	7.78	Third Quartile	7.05
Mean	5.8	SD	1.295
Coefficient of Variation	0.223	Skewness	-0.269
Mean of logged Data	1.732	SD of logged Data	0.236

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.309	d2max (for USL)	2.644

Normal GOF Test

Shapiro Wilk Test Statistic	0.852	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.884	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.216	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.205	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	8.791	90% Percentile (z)	7.46
95% UPL (t)	8.066	95% Percentile (z)	7.93
95% UPL for Next 28 Observations	10.09	99% Percentile (z)	8.813
95% UPL for Mean of 28 Observations	6.417	95% USL	9.224

Gamma GOF Test

A-D Test Statistic	1.676	**Anderson-Darling Gamma GOF Test**	

5% A-D Critical Value	0.742	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.222	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.178	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	19.57	k star (bias corrected MLE)	17.15
Theta hat (MLE)	0.296	Theta star (bias corrected MLE)	0.338
nu hat (MLE)	939.3	nu star (bias corrected)	823.2
MLE Mean (bias corrected)	5.8	MLE Sd (bias corrected)	1.401

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	8.349	90% Percentile	7.652
95% Hawkins Wixley (HW) Approx. Gamma UPL	8.393	95% Percentile	8.279
95% WH UPL for Next 28 Observations	11.31	99% Percentile	9.545
95% HW UPL for Next 28 Observations	11.54		
95% WH Approx. Gamma UTL with 95% Coverage	9.342	95% HW Approx. Gamma UTL with 95% Coverage	9.434
95% WH USL	9.972	95% HW USL	10.1

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.827	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.93	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.218	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.162	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	9.753	90% Percentile (z)	7.651
95% UPL (t)	8.545	95% Percentile (z)	8.337
95% UPL for Next 28 Observations	12.36	99% Percentile (z)	9.793
95% UPL for Mean of 28 Observations	6.326	95% USL	10.56

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	24	95% UTL with 95% Coverage	7.78
Approx, f used to compute achieved CC	1.263	Approximate Actual Confidence Coefficient achieved by UTL	0.708
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	7.78	95% BCA Bootstrap UTL with 95% Coverage	7.78
95% UPL	7.63	90% Percentile	7.158
90% Chebyshev UPL	9.766	95% Percentile	7.179
95% Chebyshev UPL	11.56	99% Percentile	7.642
95% USL	**7.78**		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Field pH

General Statistics

Total Number of Observations	24	Number of Distinct Observations	24
Minimum	4.09	First Quartile	4.335
Second Largest	5.58	Median	4.665
Maximum	5.69	Third Quartile	5.385
Mean	**4.817**	SD	0.541
Coefficient of Variation	0.112	Skewness	0.305
Mean of logged Data	1.566	SD of logged Data	0.111

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.309	d2max (for USL)	2.644

Normal GOF Test

Shapiro Wilk Test Statistic	0.878	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.884	Data Not Normal at 1% Significance Level	

Lilliefors Test Statistic	0.174	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.205	Data appear Normal at 1% Significance Level	

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	6.065	90% Percentile (z)	5.51
95% UPL (t)	5.763	95% Percentile (z)	5.706
95% UPL for Next 28 Observations	**6.608**	99% Percentile (z)	6.075
95% UPL for Mean of 28 Observations	5.075	95% USL	6.247

Gamma GOF Test

A-D Test Statistic	1.209	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.742	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.175	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.177	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	83.97	k star (bias corrected MLE)	73.5
Theta hat (MLE)	0.0574	Theta star (bias corrected MLE)	0.0655
nu hat (MLE)	4031	nu star (bias corrected)	3528
MLE Mean (bias corrected)	4.817	MLE Sd (bias corrected)	0.562

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	5.797	90% Percentile	5.549
95% Hawkins Wixley (HW) Approx. Gamma UPL	5.801	95% Percentile	5.776
95% WH UPL for Next 28 Observations	6.799	99% Percentile	6.219
95% HW UPL for Next 28 Observations	6.827		
95% WH Approx. Gamma UTL with 95% Coverage	6.144	95% HW Approx. Gamma UTL with 95% Coverage	6.155
95% WH USL	6.357	95% HW USL	6.373

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.884	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.93	Data Not Lognormal at 10% Significance Level	

Lilliefors Test Statistic	0.168	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.162	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	6.19	90% Percentile (z)	5.522
95% UPL (t)	5.816	95% Percentile (z)	5.749
95% UPL for Next 28 Observations	6.921	99% Percentile (z)	6.202
95% UPL for Mean of 28 Observations	5.049	95% USL	6.425

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	24	95% UTL with 95% Coverage	5.69
Approx, f used to compute achieved CC	1.263	Approximate Actual Confidence Coefficient achieved by UTL	0.708
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	5.69	95% BCA Bootstrap UTL with 95% Coverage	5.69
95% UPL	5.663	90% Percentile	5.514
90% Chebyshev UPL	6.473	95% Percentile	5.571
95% Chebyshev UPL	7.223	99% Percentile	5.665
95% USL	5.69		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Sulfate

General Statistics

Total Number of Observations	23	Number of Distinct Observations	23
		Number of Missing Observations	1
Minimum	0.251	First Quartile	0.475

Second Largest	5.16	Median	1.14
Maximum	6.26	Third Quartile	2.655
Mean	1.894	SD	1.809
Coefficient of Variation	0.956	Skewness	1.205
Mean of logged Data	0.195	SD of logged Data	0.982

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.328	d2max (for USL)	2.624

Normal GOF Test

Shapiro Wilk Test Statistic	0.813	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.881	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.24	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.209	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	6.106	90% Percentile (z)	4.213
95% UPL (t)	5.068	95% Percentile (z)	4.87
95% UPL for Next 28 Observations	7.923	99% Percentile (z)	6.103
95% UPL for Mean of 28 Observations	2.768	95% USL	6.642

Gamma GOF Test

A-D Test Statistic	0.675	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.764	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.134	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.186	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.267	k star (bias corrected MLE)	1.131
Theta hat (MLE)	1.494	Theta star (bias corrected MLE)	1.674
nu hat (MLE)	58.3	nu star (bias corrected)	52.03
MLE Mean (bias corrected)	1.894	MLE Sd (bias corrected)	1.781

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	5.625	90% Percentile	4.23
95% Hawkins Wixley (HW) Approx. Gamma UPL	5.811	95% Percentile	5.433
95% WH UPL for Next 28 Observations	13.27	99% Percentile	8.202
95% HW UPL for Next 28 Observations	**15.28**		
95% WH Approx. Gamma UTL with 95% Coverage	7.913	95% HW Approx. Gamma UTL with 95% Coverage	8.49
95% WH USL	9.303	95% HW USL	10.19

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.928	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.135	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.165	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	11.96	90% Percentile (z)	4.279
95% UPL (t)	6.807	95% Percentile (z)	6.114
95% UPL for Next 28 Observations	32.07	99% Percentile (z)	11.94
95% UPL for Mean of 28 Observations	1.953	95% USL	16

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	23	95% UTL with 95% Coverage	6.26
Approx, f used to compute achieved CC	1.211	Approximate Actual Confidence Coefficient achieved by UTL	0.693
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	6.26	95% BCA Bootstrap UTL with 95% Coverage	6.26
95% UPL	6.04	90% Percentile	4.746
90% Chebyshev UPL	7.439	95% Percentile	5.119
95% Chebyshev UPL	9.951	99% Percentile	6.018

95% USL	6.26

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.2 10/18/2023 3:01:33 PM
From File	Wateree_2023Q3_Baseline_ProUCL_Input_Outliers rem.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	28
Number of Bootstrap Operations	2000

Fluoride

General Statistics

Total Number of Observations	24	Number of Missing Observations	0
Number of Distinct Observations	14		
Number of Detects	14	Number of Non-Detects	10
Number of Distinct Detects	13	Number of Distinct Non-Detects	1
Minimum Detect	0.034	Minimum Non-Detect	0.033
Maximum Detect	0.0971	Maximum Non-Detect	0.033
Variance Detected	4.4460E-4	Percent Non-Detects	41.67%
Mean Detected	0.0566	SD Detected	0.0211
Mean of Detected Logged Data	-2.931	SD of Detected Logged Data	0.349

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.309	d2max (for USL)	2.644

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.847	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.825	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.264	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.263	Data Not Normal at 1% Significance Level	

Detected Data appear Approximate Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0468	KM SD	0.0194
95% UTL95% Coverage	0.0916	95% KM UPL (t)	0.0807
95% KM UPL for Next 28 Observations	**0.111**	95% KM UPL for Mean of Next 28 Observations	0.056
90% KM Percentile (z)	0.0716	95% KM Percentile (z)	0.0787
99% KM Percentile (z)	0.0919	95% KM USL	0.0981

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0399	SD	0.0257
95% UTL95% Coverage	0.0992	95% UPL (t)	0.0848
95% UPL for Next 28 Observations	0.125	95% UPL for Mean of Next 28 Observations	0.0521
90% Percentile (z)	0.0728	95% Percentile (z)	0.0821
99% Percentile (z)	0.0996	95% USL	0.108

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.834	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.735	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.253	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.229	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	8.627	k star (bias corrected MLE)	6.826
Theta hat (MLE)	0.00656	Theta star (bias corrected MLE)	0.00829
nu hat (MLE)	241.6	nu star (bias corrected)	191.1
MLE Mean (bias corrected)	0.0566		
MLE Sd (bias corrected)	0.0217	95% Percentile of Chisquare (2kstar)	23.23

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.0392
Maximum	0.0971	Median	0.0394
SD	0.0266	CV	0.679
k hat (MLE)	2.125	k star (bias corrected MLE)	1.888
Theta hat (MLE)	0.0184	Theta star (bias corrected MLE)	0.0208
nu hat (MLE)	102	nu star (bias corrected)	90.6
MLE Mean (bias corrected)	0.0392	MLE Sd (bias corrected)	0.0285
95% Percentile of Chisquare (2kstar)	9.121	90% Percentile	0.0773
95% Percentile	0.0947	99% Percentile	0.133

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.129	0.137	95% Approx. Gamma UPL	0.0977	0.101
95% Gamma USL	0.15	0.162	95% UPL for Next 28 Observations	0.2	0.224

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0468	SD (KM)	0.0194
Variance (KM)	3.7628E-4	SE of Mean (KM)	0.00411
k hat (KM)	5.814	k star (KM)	5.115
nu hat (KM)	279.1	nu star (KM)	245.5
theta hat (KM)	0.00805	theta star (KM)	0.00914
80% gamma percentile (KM)	0.0627	90% gamma percentile (KM)	0.0745
95% gamma percentile (KM)	0.0851	99% gamma percentile (KM)	0.108

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0949	0.0955	95% Approx. Gamma UPL	0.0804	0.0804
95% KM Gamma Percentile	0.0778	0.0778	95% Gamma USL	0.104	0.106

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.888	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.895	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.236	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.208	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0421	Mean in Log Scale	-3.316
SD in Original Scale	0.0239	SD in Log Scale	0.564
95% UTL95% Coverage	0.133	95% BCA UTL95% Coverage	0.0971
95% Bootstrap (%) UTL95% Coverage	0.0971	95% UPL (t)	0.0973
95% UPL for Next 28 Observations	0.235	95% UPL for Mean of 28 Observations	0.0475
90% Percentile (z)	0.0747	95% Percentile (z)	0.0917
99% Percentile (z)	0.135	95% USL	0.161

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.131	95% KM UTL (Lognormal)95% Coverage	0.0979
KM SD of Logged Data	0.349	95% KM UPL (Lognormal)	0.0805
95% KM Percentile Lognormal (z)	0.0776	95% KM USL (Lognormal)	0.11

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0399	Mean in Log Scale	-3.42
SD in Original Scale	0.0257	SD in Log Scale	0.647
95% UTL95% Coverage	0.146	95% UPL (t)	0.101
95% UPL for Next 28 Observations	0.279	95% UPL for Mean of 28 Observations	0.0445
90% Percentile (z)	0.0749	95% Percentile (z)	0.0948
99% Percentile (z)	0.147	95% USL	0.181

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs (no distinction made between detects and nondetects)

Order of Statistic, r	24	95% UTL with95% Coverage	0.0971
Approx, f used to compute achieved CC	1.263	Approximate Actual Confidence Coefficient achieved by UTL	0.708
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.0949
95% USL	0.0971	95% KM Chebyshev UPL	0.133

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

TDS

General Statistics

Total Number of Observations	23	Number of Missing Observations	1
Number of Distinct Observations	16		
Number of Detects	20	Number of Non-Detects	3
Number of Distinct Detects	15	Number of Distinct Non-Detects	1
Minimum Detect	3	Minimum Non-Detect	2.38
Maximum Detect	46	Maximum Non-Detect	2.38
Variance Detected	153.3	Percent Non-Detects	13.04%
Mean Detected	17.55	SD Detected	12.38
Mean of Detected Logged Data	2.575	SD of Detected Logged Data	0.835

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.328	d2max (for USL)	2.624

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.915	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.868	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.155	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.223	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	15.57	KM SD	12.36
95% UTL95% Coverage	44.34	95% KM UPL (t)	37.25
95% KM UPL for Next 28 Observations	**56.75**	95% KM UPL for Mean of Next 28 Observations	21.54
90% KM Percentile (z)	31.41	95% KM Percentile (z)	35.9
99% KM Percentile (z)	44.32	95% KM USL	48

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	15.42	SD	12.81
95% UTL95% Coverage	45.24	95% UPL (t)	37.89
95% UPL for Next 28 Observations	58.1	95% UPL for Mean of Next 28 Observations	21.61
90% Percentile (z)	31.84	95% Percentile (z)	36.49
99% Percentile (z)	45.22	95% USL	49.03

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.499	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.754	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.138	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.196	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.871	k star (bias corrected MLE)	1.624
Theta hat (MLE)	9.378	Theta star (bias corrected MLE)	10.81
nu hat (MLE)	74.85	nu star (bias corrected)	64.96
MLE Mean (bias corrected)	17.55		
MLE Sd (bias corrected)	13.77	95% Percentile of Chisquare (2kstar)	8.24

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	15.28
Maximum	46	Median	14
SD	12.97	CV	0.849
k hat (MLE)	0.664	k star (bias corrected MLE)	0.606
Theta hat (MLE)	23.02	Theta star (bias corrected MLE)	25.21
nu hat (MLE)	30.54	nu star (bias corrected)	27.89
MLE Mean (bias corrected)	15.28	MLE Sd (bias corrected)	19.63
95% Percentile of Chisquare (2kstar)	4.347	90% Percentile	39.66
95% Percentile	54.79	99% Percentile	91.37

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	82.03	105.9	95% Approx. Gamma UPL	55.36	65.92
95% Gamma USL	98.64	132.5	95% UPL for Next 28 Observations	147.1	216.4

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	15.57	SD (KM)	12.36
Variance (KM)	152.8	SE of Mean (KM)	2.644
k hat (KM)	1.587	k star (KM)	1.409
nu hat (KM)	73.02	nu star (KM)	64.83
theta hat (KM)	9.81	theta star (KM)	11.05
80% gamma percentile (KM)	24.26	90% gamma percentile (KM)	32.95
95% gamma percentile (KM)	41.42	99% gamma percentile (KM)	60.64

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	60.55	65.63	95% Approx. Gamma UPL	43.83	45.76
95% KM Gamma Percentile	41.04	42.56	95% Gamma USL	70.63	78.1

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.93	**Shapiro Wilk GOF Test**	

10% Shapiro Wilk Critical Value	0.92	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.147	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.176	Detected Data appear Lognormal at 10% Significance Level

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	15.52	Mean in Log Scale	2.325
SD in Original Scale	12.69	SD in Log Scale	1.022
95% UTL95% Coverage	110.4	95% BCA UTL95% Coverage	46
95% Bootstrap (%) UTL95% Coverage	46	95% UPL (t)	61.41
95% UPL for Next 28 Observations	308	95% UPL for Mean of 28 Observations	16.76
90% Percentile (z)	37.89	95% Percentile (z)	54.92
99% Percentile (z)	110.2	95% USL	149.4

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.352	95% KM UTL (Lognormal)95% Coverage	96.38
KM SD of Logged Data	0.952	95% KM UPL (Lognormal)	55.81
95% KM Percentile Lognormal (z)	50.3	95% KM USL (Lognormal)	127.7

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	15.42	Mean in Log Scale	2.262
SD in Original Scale	12.81	SD in Log Scale	1.134
95% UTL95% Coverage	134.4	95% UPL (t)	70.12
95% UPL for Next 28 Observations	419.4	95% UPL for Mean of 28 Observations	16.6
90% Percentile (z)	41.04	95% Percentile (z)	61.95
99% Percentile (z)	134.1	95% USL	188

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

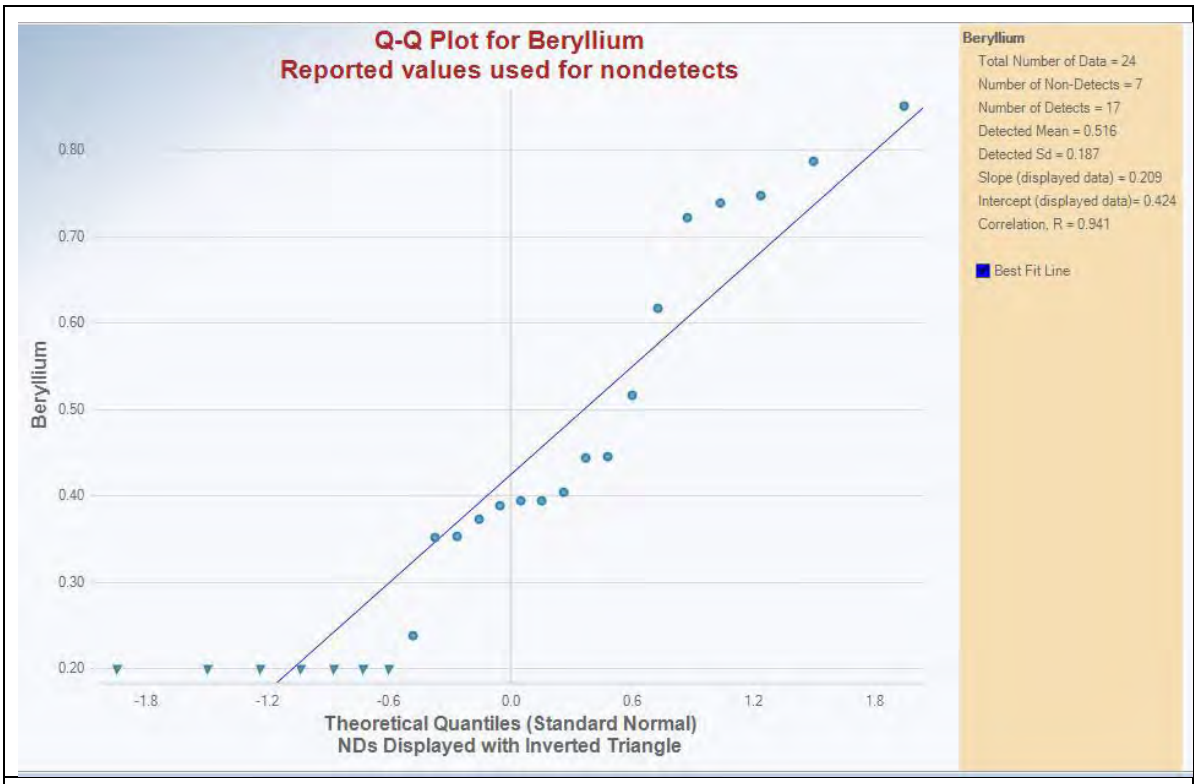
Data appear to follow a Discernible Distribution

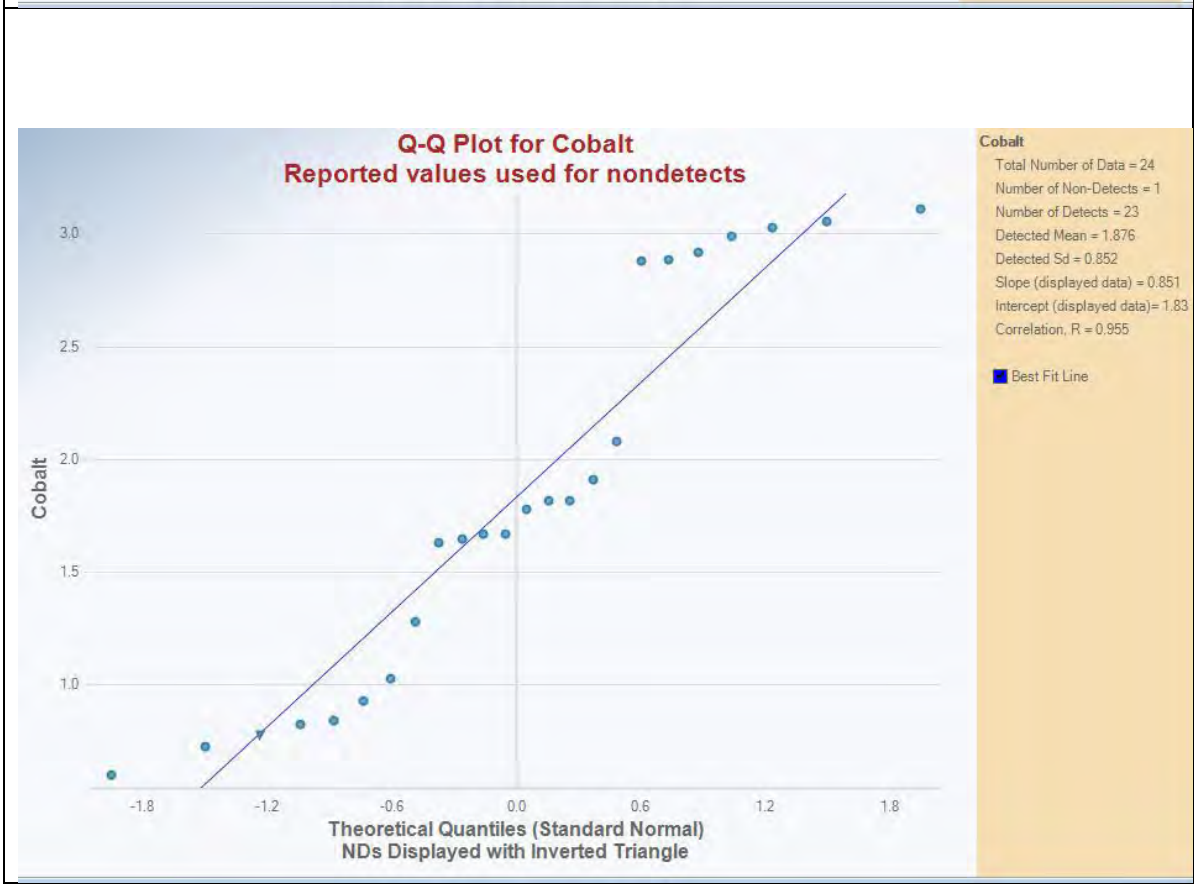
Nonparametric Upper Limits for BTVs (no distinction made between detects and nondetects)

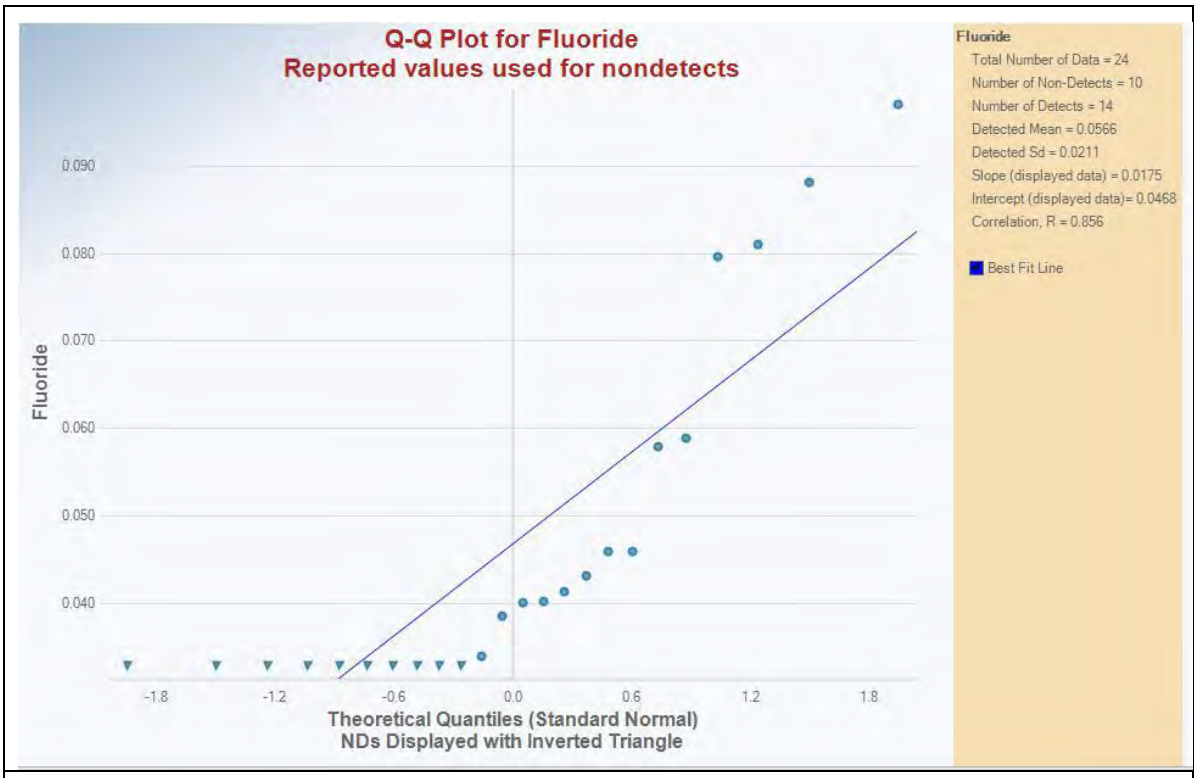
Order of Statistic, r	23	95% UTL with95% Coverage	46
Approx, f used to compute achieved CC	1.211	Approximate Actual Confidence Coefficient achieved by UTL	0.693
Approximate Sample Size needed to achieve specified CC	59	95% UPL	43.6
95% USL	46	95% KM Chebyshev UPL	70.6

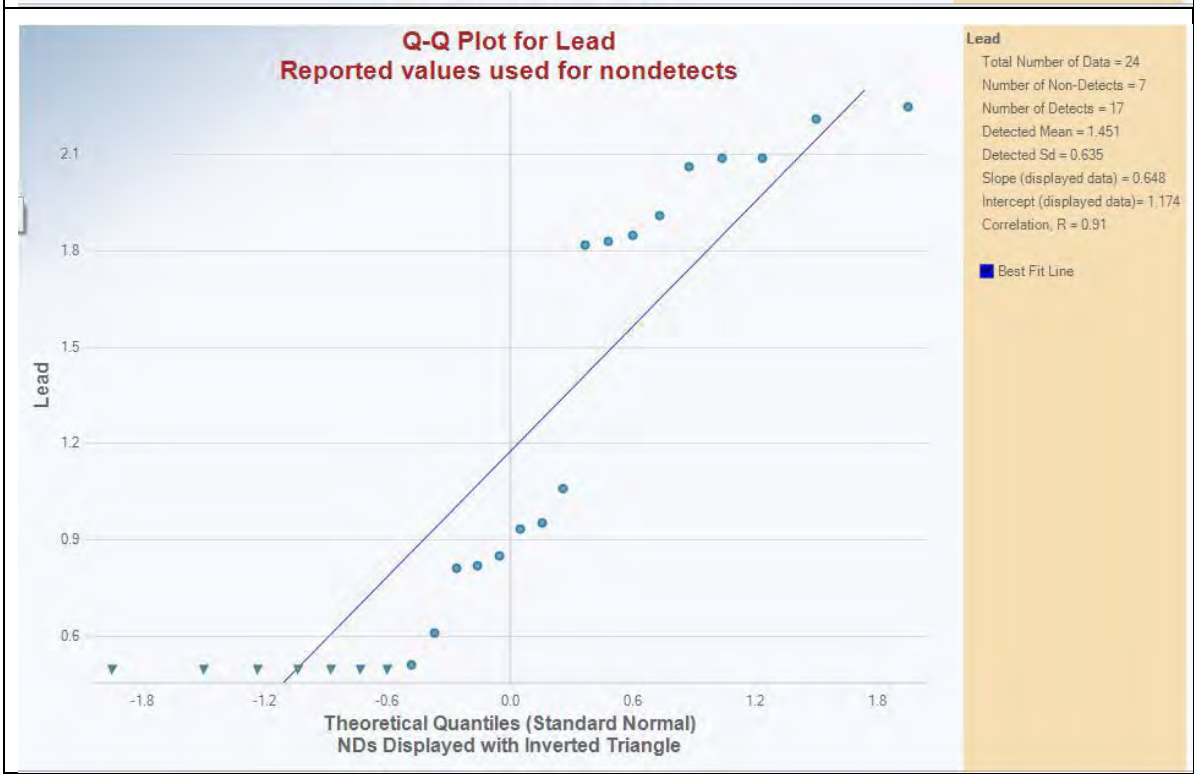
Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

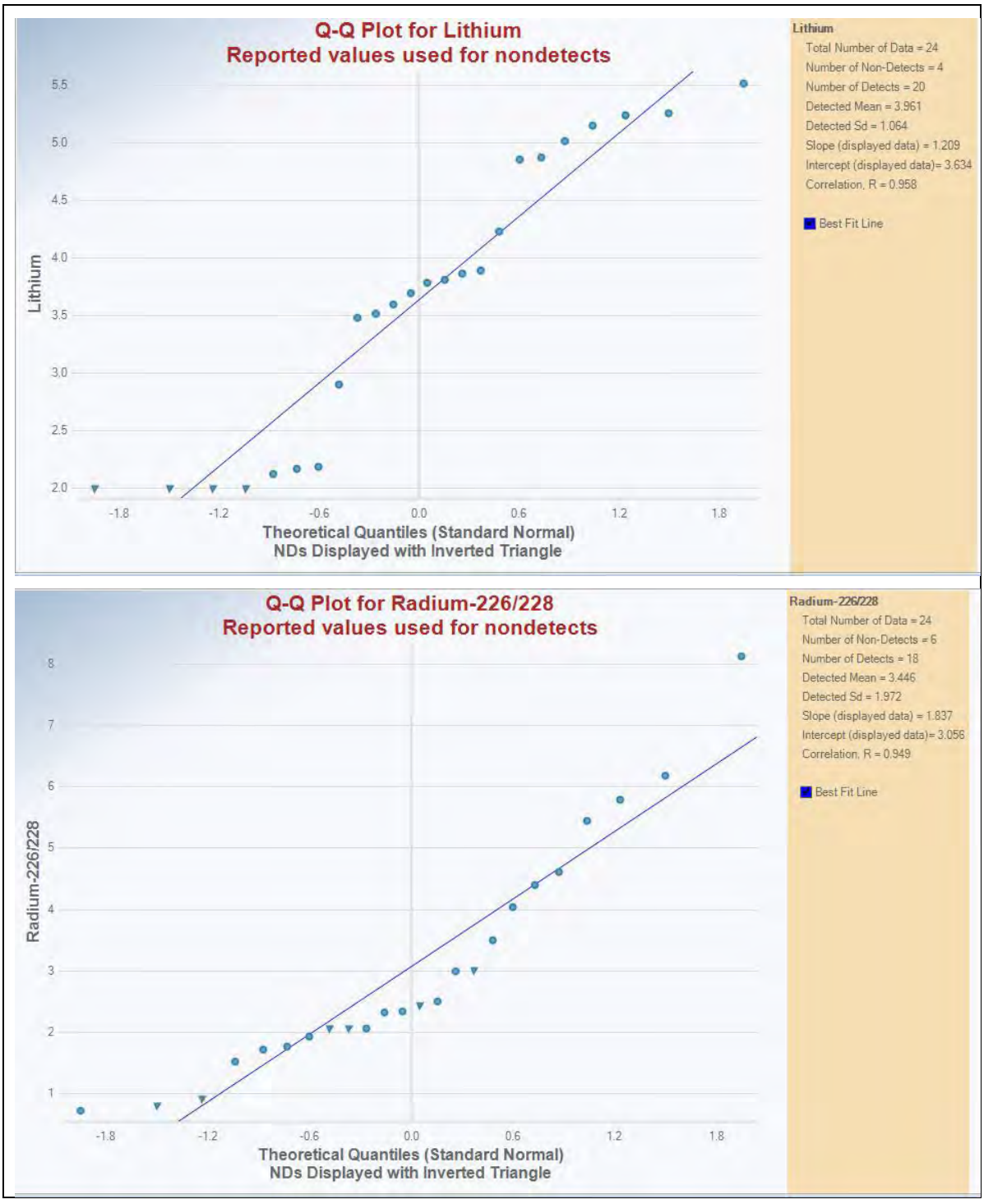
Appendix IV Constituents


Q-Q Plot for Beryllium
Reported values used for nondetects
Beryllium
Total Number of Data = 24
Number of Non-Detects = 7
Number of Detects = 17
Detected Mean = 0.516
Detected Sd = 0.187
Slope (displayed data) = 0.209
Intercept (displayed data)= 0.424
Correlation, R = 0.941
Best Fit Line
Beryllium
0.80
0.70
0.60
0.50
0.40
0.30
0.20
-1.8
-1.2
-0.6
0.0
0.6
1.2
1.8
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle


Q-Q Plot for Cobalt
Reported values used for nondetects
Cobalt
Total Number of Data = 24
Number of Non-Detects = 1
Number of Detects = 23
Detected Mean = 1.876
Detected Sd = 0.852
Slope (displayed data) = 0.851
Intercept (displayed data)= 1.83
Correlation, R = 0.955
Best Fit Line
Cobalt
3.0
2.5
2.0
1.5
1.0
-1.8
-1.2
-0.6
0.0
0.6
1.2
1.8
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle


Q-Q Plot for Fluoride
Reported values used for nondetects
Fluoride
0.090
0.080
0.070
0.060
0.050
0.040
-1.8
-1.2
-0.6
0.0
0.6
1.2
1.8
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle
Fluoride
Total Number of Data = 24
Number of Non-Detects = 10
Number of Detects = 14
Detected Mean = 0.0566
Detected Sd = 0.0211
Slope (displayed data) = 0.0175
Intercept (displayed data)= 0.0468
Correlation, R = 0.856
Best Fit Line


Q-Q Plot for Lead
Reported values used for nondetects
Lead
2.1
1.8
1.5
1.2
0.9
0.6
-1.8
-1.2
-0.6
0.0
0.6
1.2
1.8
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle
Lead
Total Number of Data = 24
Number of Non-Detects = 7
Number of Detects = 17
Detected Mean = 1.451
Detected Sd = 0.635
Slope (displayed data) = 0.648
Intercept (displayed data)= 1.174
Correlation, R = 0.91
Best Fit Line


Q-Q Plot for Lithium
Reported values used for nondetects
Lithium
Total Number of Data = 24
Number of Non-Detects = 4
Number of Detects = 20
Detected Mean = 3.961
Detected Sd = 1.064
Slope (displayed data) = 1.209
Intercept (displayed data)= 3.634
Correlation, R = 0.958
Best Fit Line
Lithium
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
-1.8
-1.2
-0.6
0.0
0.6
1.2
1.8
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle
Q-Q Plot for Radium-226/228
Reported values used for nondetects
Radium-226/228
Total Number of Data = 24
Number of Non-Detects = 6
Number of Detects = 18
Detected Mean = 3.446
Detected Sd = 1.972
Slope (displayed data) = 1.837
Intercept (displayed data)= 3.056
Correlation, R = 0.949
Best Fit Line
Radium-226/228
8
7
6
5
4
3
2
1
-1.8
-1.2
-0.6
0.0
0.6
1.2
1.8
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle

Background Statistics for Uncensored Full Data Sets

User Selected Options

Date/Time of Computation	ProUCL 5.2 11/8/2023 11:29:30 AM
From File	P:\Clients\Dominion\South Carolina Sites\5_Wateree Station SC\Class 3 Landfill - CCR\2023\Baseline Evaluation\Without MW-LF-01\Wateree_CIII_Landfill_Data_Summary_Table_with DV.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1
Number of Bootstrap Operations	2000

Barium

General Statistics

Total Number of Observations	24	Number of Distinct Observations	23
Minimum	38.8	First Quartile	42.65
Second Largest	131	Median	99.2
Maximum	139	Third Quartile	121
Mean	88.8	SD	36.41
Coefficient of Variation	0.41	Skewness	-0.369
Mean of logged Data	4.384	SD of logged Data	0.489

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.309	d2max (for USL)	2.644

Normal GOF Test

Shapiro Wilk Test Statistic	0.839	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.884	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.226	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.205	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	172.9	90% Percentile (z)	135.5
95% UPL (t)	152.5	95% Percentile (z)	148.7
95% USL	185.1	99% Percentile (z)	173.5

Gamma GOF Test

A-D Test Statistic	2.118	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.746	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.269	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.178	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	5.053	k star (bias corrected MLE)	4.449
Theta hat (MLE)	17.57	Theta star (bias corrected MLE)	19.96
nu hat (MLE)	242.5	nu star (bias corrected)	213.6
MLE Mean (bias corrected)	88.8	MLE Sd (bias corrected)	42.1

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	170.9	90% Percentile	145.2
95% Hawkins Wixley (HW) Approx. Gamma UPL	174.5	95% Percentile	167.4
95% WH Approx. Gamma UTL with 95% Coverage	208.4	99% Percentile	214.6
95% HW Approx. Gamma UTL with 95% Coverage	216		
95% WH USL	233.2	95% HW USL	244

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.783	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.93	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.283	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.162	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	247.8	90% Percentile (z)	150

95% UPL (t)	188.5	95% Percentile (z)	179.1
95% USL	291.9	99% Percentile (z)	249.9

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	24	95% UTL with 95% Coverage	139
Approx, f used to compute achieved CC	1.263	Approximate Actual Confidence Coefficient achieved by UTL	0.708
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	139	95% BCA Bootstrap UTL with 95% Coverage	137.8
95% UPL	137	90% Percentile	128.8
90% Chebyshev UPL	200.3	95% Percentile	130.9
95% Chebyshev UPL	250.8	99% Percentile	137.2
95% USL	**139**		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.2 11/8/2023 11:37:08 AM
From File	Wateree_CIII_Landfill_Data_Summary_Table_with DV_h.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

Beryllium

General Statistics

Total Number of Observations	24	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	17	Number of Non-Detects	7
Number of Distinct Detects	16	Number of Distinct Non-Detects	1
Minimum Detect	0.239	Minimum Non-Detect	0.2
Maximum Detect	0.852	Maximum Non-Detect	0.2
Variance Detected	0.0351	Percent Non-Detects	29.17%
Mean Detected	0.516	SD Detected	0.187
Mean of Detected Logged Data	-0.722	SD of Detected Logged Data	0.361

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.309	d2max (for USL)	2.644

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.887	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.851	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.235	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.241	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.424	KM SD	0.21
95% UTL95% Coverage	0.909	**95% KM UPL (t)**	**0.791**
90% KM Percentile (z)	0.693	95% KM Percentile (z)	0.769
99% KM Percentile (z)	0.912	95% KM USL	0.979

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.395	SD	0.249
95% UTL95% Coverage	0.969	95% UPL (t)	0.83
90% Percentile (z)	0.713	95% Percentile (z)	0.804
99% Percentile (z)	0.973	95% USL	1.052

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.773	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.74	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.204	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.209	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	8.322	k star (bias corrected MLE)	6.893
Theta hat (MLE)	0.0621	Theta star (bias corrected MLE)	0.0749
nu hat (MLE)	283	nu star (bias corrected)	234.4
MLE Mean (bias corrected)	0.516		
MLE Sd (bias corrected)	0.197	95% Percentile of Chisquare (2kstar)	23.4

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs. This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0292	Mean	0.408
Maximum	0.852	Median	0.392
SD	0.235	CV	0.576

k hat (MLE)	2.355	k star (bias corrected MLE)	2.088
Theta hat (MLE)	0.173	Theta star (bias corrected MLE)	0.196
nu hat (MLE)	113	nu star (bias corrected)	100.2
MLE Mean (bias corrected)	0.408	MLE Sd (bias corrected)	0.283
95% Percentile of Chisquare (2kstar)	9.773	90% Percentile	0.786
95% Percentile	0.955	99% Percentile	1.33

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.279	1.384	95% Approx. Gamma UPL	0.983	1.033
95% Gamma USL	1.482	1.633			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.424	SD (KM)	0.21
Variance (KM)	0.0441	SE of Mean (KM)	0.0442
k hat (KM)	4.082	k star (KM)	3.6
nu hat (KM)	195.9	nu star (KM)	172.8
theta hat (KM)	0.104	theta star (KM)	0.118
80% gamma percentile (KM)	0.592	90% gamma percentile (KM)	0.724
95% gamma percentile (KM)	0.846	99% gamma percentile (KM)	1.108

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.04	1.069	95% Approx. Gamma UPL	0.844	0.855
95% KM Gamma Percentile	0.81	0.819	95% Gamma USL	1.171	1.215

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.921	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Detected Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.182	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.19	Detected Data appear Lognormal at 10% Significance Level	

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.427	Mean in Log Scale	-0.974
SD in Original Scale	0.213	SD in Log Scale	0.514
95% UTL95% Coverage	1.236	95% BCA UTL95% Coverage	0.852
95% Bootstrap (%) UTL95% Coverage	0.852	95% UPL (t)	0.927
90% Percentile (z)	0.729	95% Percentile (z)	0.879
99% Percentile (z)	1.247	95% USL	1.468

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-0.981	95% KM UTL (Lognormal)95% Coverage	1.189
KM SD of Logged Data	0.5	95% KM UPL (Lognormal)	0.899
95% KM Percentile Lognormal (z)	0.853	95% KM USL (Lognormal)	1.405

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.395	Mean in Log Scale	-1.183
SD in Original Scale	0.249	SD in Log Scale	0.793
95% UTL95% Coverage	1.913	95% UPL (t)	1.227
90% Percentile (z)	0.847	95% Percentile (z)	1.129
99% Percentile (z)	1.939	95% USL	2.495

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs (no distinction made between detects and nondetects)

Order of Statistic, r	24	95% UTL with95% Coverage	0.852
Approx, f used to compute achieved CC	1.263	Approximate Actual Confidence Coefficient achieved by UTL	0.708
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.836
95% USL	0.852	95% KM Chebyshev UPL	1.358

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Cobalt

General Statistics

Total Number of Observations	24	Number of Missing Observations	0
Number of Distinct Observations	22		
Number of Detects	23	Number of Non-Detects	1
Number of Distinct Detects	21	Number of Distinct Non-Detects	1
Minimum Detect	0.604	Minimum Non-Detect	0.781
Maximum Detect	3.11	Maximum Non-Detect	0.781
Variance Detected	0.725	Percent Non-Detects	4.167%
Mean Detected	1.876	SD Detected	0.852
Mean of Detected Logged Data	0.514	SD of Detected Logged Data	0.513

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.309	d2max (for USL)	2.644

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.898	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.881	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.185	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.209	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	1.826	KM SD	0.851
95% UTL95% Coverage	3.789	**95% KM UPL (t)**	**3.313**
90% KM Percentile (z)	2.916	95% KM Percentile (z)	3.225
99% KM Percentile (z)	3.804	95% KM USL	4.074

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.814	SD	0.886
95% UTL95% Coverage	3.861	95% UPL (t)	3.365

90% Percentile (z)	2.95	95% Percentile (z)	3.272
99% Percentile (z)	3.876	95% USL	4.158

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.728	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.748	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.176	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.182	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	4.521	k star (bias corrected MLE)	3.96
Theta hat (MLE)	0.415	Theta star (bias corrected MLE)	0.474
nu hat (MLE)	208	nu star (bias corrected)	182.2
MLE Mean (bias corrected)	1.876		
MLE Sd (bias corrected)	0.943	95% Percentile of Chisquare (2kstar)	15.39

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs. This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.604	Mean	1.826
Maximum	3.11	Median	1.725
SD	0.868	CV	0.476
k hat (MLE)	4.142	k star (bias corrected MLE)	3.652
Theta hat (MLE)	0.441	Theta star (bias corrected MLE)	0.5
nu hat (MLE)	198.8	nu star (bias corrected)	175.3
MLE Mean (bias corrected)	1.826	MLE Sd (bias corrected)	0.955
95% Percentile of Chisquare (2kstar)	14.51	90% Percentile	3.107
95% Percentile	3.627	99% Percentile	4.742

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	4.594	4.769	95% Approx. Gamma UPL	3.708	3.786
95% Gamma USL	5.187	5.441			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.826	SD (KM)	0.851
Variance (KM)	0.723	SE of Mean (KM)	0.178
k hat (KM)	4.607	k star (KM)	4.059
nu hat (KM)	221.1	nu star (KM)	194.8
theta hat (KM)	0.396	theta star (KM)	0.45
80% gamma percentile (KM)	2.513	90% gamma percentile (KM)	3.04
95% gamma percentile (KM)	3.525	99% gamma percentile (KM)	4.56

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	4.517	4.682	95% Approx. Gamma UPL	3.657	3.73
95% KM Gamma Percentile	3.51	3.571	95% Gamma USL	5.091	5.332

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.908	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.928	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.175	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.165	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	1.826	Mean in Log Scale	0.477
SD in Original Scale	0.868	SD in Log Scale	0.533
95% UTL95% Coverage	5.522	95% BCA UTL95% Coverage	3.11
95% Bootstrap (%) UTL95% Coverage	3.11	95% UPL (t)	4.097
90% Percentile (z)	3.193	95% Percentile (z)	3.875
99% Percentile (z)	5.573	95% USL	6.602

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.476	95% KM UTL (Lognormal)95% Coverage	5.407
KM SD of Logged Data	0.525	95% KM UPL (Lognormal)	4.03
95% KM Percentile Lognormal (z)	3.816	95% KM USL (Lognormal)	6.445

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1.814	Mean in Log Scale	0.454
SD in Original Scale	0.886	SD in Log Scale	0.583
95% UTL95% Coverage	6.045	95% UPL (t)	4.363
90% Percentile (z)	3.322	95% Percentile (z)	4.105
99% Percentile (z)	6.107	95% USL	7.348

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs (no distinction made between detects and nondetects)

Order of Statistic, r	24	95% UTL with95% Coverage	3.11
Approx, f used to compute achieved CC	1.263	Approximate Actual Confidence Coefficient achieved by UTL	0.708
Approximate Sample Size needed to achieve specified CC	59	95% UPL	3.098
95% USL	3.11	95% KM Chebyshev UPL	5.609

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Fluoride

General Statistics

Total Number of Observations	24	Number of Missing Observations	0
Number of Distinct Observations	14		
Number of Detects	14	Number of Non-Detects	10
Number of Distinct Detects	13	Number of Distinct Non-Detects	1
Minimum Detect	0.034	Minimum Non-Detect	0.033

Maximum Detect	0.0971	Maximum Non-Detect	0.033
Variance Detected	4.4460E-4	Percent Non-Detects	41.67%
Mean Detected	0.0566	SD Detected	0.0211
Mean of Detected Logged Data	-2.931	SD of Detected Logged Data	0.349

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.309	d2max (for USL)	2.644

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.847	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.825	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.264	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.263	Data Not Normal at 1% Significance Level	

Detected Data appear Approximate Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0468	KM SD	0.0194
95% UTL95% Coverage	0.0916	**95% KM UPL (t)**	**0.0807**
90% KM Percentile (z)	0.0716	95% KM Percentile (z)	0.0787
99% KM Percentile (z)	0.0919	95% KM USL	0.0981

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0399	SD	0.0257
95% UTL95% Coverage	0.0992	95% UPL (t)	0.0848
90% Percentile (z)	0.0728	95% Percentile (z)	0.0821
99% Percentile (z)	0.0996	95% USL	0.108

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.834	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.735	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.253	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.229	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	8.627	k star (bias corrected MLE)	6.826
Theta hat (MLE)	0.00656	Theta star (bias corrected MLE)	0.00829
nu hat (MLE)	241.6	nu star (bias corrected)	191.1
MLE Mean (bias corrected)	0.0566		
MLE Sd (bias corrected)	0.0217	95% Percentile of Chisquare (2kstar)	23.23

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.0392
Maximum	0.0971	Median	0.0394
SD	0.0266	CV	0.679
k hat (MLE)	2.125	k star (bias corrected MLE)	1.888
Theta hat (MLE)	0.0184	Theta star (bias corrected MLE)	0.0208
nu hat (MLE)	102	nu star (bias corrected)	90.6
MLE Mean (bias corrected)	0.0392	MLE Sd (bias corrected)	0.0285
95% Percentile of Chisquare (2kstar)	9.121	90% Percentile	0.0773
95% Percentile	0.0947	99% Percentile	0.133

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.129	0.137	95% Approx. Gamma UPL	0.0977	0.101
95% Gamma USL	0.15	0.162			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0468	SD (KM)	0.0194
Variance (KM)	3.7628E-4	SE of Mean (KM)	0.00411
k hat (KM)	5.814	k star (KM)	5.115
nu hat (KM)	279.1	nu star (KM)	245.5

theta hat (KM)	0.00805	theta star (KM)	0.00914
80% gamma percentile (KM)	0.0627	90% gamma percentile (KM)	0.0745
95% gamma percentile (KM)	0.0851	99% gamma percentile (KM)	0.108

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0949	0.0955	95% Approx. Gamma UPL	0.0804	0.0804
95% KM Gamma Percentile	0.0778	0.0778	95% Gamma USL	0.104	0.106

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.888	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.895	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.236	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.208	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0421	Mean in Log Scale	-3.316
SD in Original Scale	0.0239	SD in Log Scale	0.564
95% UTL95% Coverage	0.133	95% BCA UTL95% Coverage	0.0971
95% Bootstrap (%) UTL95% Coverage	0.0971	95% UPL (t)	0.0973
90% Percentile (z)	0.0747	95% Percentile (z)	0.0917
99% Percentile (z)	0.135	95% USL	0.161

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.131	95% KM UTL (Lognormal)95% Coverage	0.0979
KM SD of Logged Data	0.349	95% KM UPL (Lognormal)	0.0805
95% KM Percentile Lognormal (z)	0.0776	95% KM USL (Lognormal)	0.11

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0399	Mean in Log Scale	-3.42
SD in Original Scale	0.0257	SD in Log Scale	0.647
95% UTL95% Coverage	0.146	95% UPL (t)	0.101

90% Percentile (z)	0.0749	95% Percentile (z)	0.0948
99% Percentile (z)	0.147	95% USL	0.181

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs (no distinction made between detects and nondetects)

Order of Statistic, r	24	95% UTL with95% Coverage	0.0971
Approx, f used to compute achieved CC	1.263	Approximate Actual Confidence Coefficient achieved by UTL	0.708
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.0949
95% USL	0.0971	95% KM Chebyshev UPL	0.133

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Lead

General Statistics

Total Number of Observations	24	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	17	Number of Non-Detects	7
Number of Distinct Detects	16	Number of Distinct Non-Detects	1
Minimum Detect	0.515	Minimum Non-Detect	0.5
Maximum Detect	2.25	Maximum Non-Detect	0.5
Variance Detected	0.404	Percent Non-Detects	29.17%
Mean Detected	1.451	SD Detected	0.635
Mean of Detected Logged Data	0.264	SD of Detected Logged Data	0.502

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.309	d2max (for USL)	2.644

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.852	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.851	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.248	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.241	Data Not Normal at 1% Significance Level	

Detected Data appear Approximate Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	1.174	KM SD	0.675
95% UTL95% Coverage	2.733	**95% KM UPL (t)**	**2.355**
90% KM Percentile (z)	2.039	95% KM Percentile (z)	2.285
99% KM Percentile (z)	2.745	95% KM USL	2.96

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.101	SD	0.769
95% UTL95% Coverage	2.878	95% UPL (t)	2.447
90% Percentile (z)	2.087	95% Percentile (z)	2.367
99% Percentile (z)	2.891	95% USL	3.135

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.138	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.742	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.276	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	4.781	k star (bias corrected MLE)	3.976
Theta hat (MLE)	0.304	Theta star (bias corrected MLE)	0.365
nu hat (MLE)	162.5	nu star (bias corrected)	135.2
MLE Mean (bias corrected)	1.451		
MLE Sd (bias corrected)	0.728	95% Percentile of Chisquare (2kstar)	15.44

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0392	Mean	1.129
Maximum	2.25	Median	0.894
SD	0.744	CV	0.659
k hat (MLE)	1.72	k star (bias corrected MLE)	1.533
Theta hat (MLE)	0.657	Theta star (bias corrected MLE)	0.737
nu hat (MLE)	82.56	nu star (bias corrected)	73.57
MLE Mean (bias corrected)	1.129	MLE Sd (bias corrected)	0.912
95% Percentile of Chisquare (2kstar)	7.928	90% Percentile	2.341
95% Percentile	2.921	99% Percentile	4.228

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	4.052	4.478	95% Approx. Gamma UPL	3.017	3.213
95% Gamma USL	4.772	5.395			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.174	SD (KM)	0.675
Variance (KM)	0.456	SE of Mean (KM)	0.142
k hat (KM)	3.021	k star (KM)	2.671
nu hat (KM)	145	nu star (KM)	128.2
theta hat (KM)	0.389	theta star (KM)	0.439
80% gamma percentile (KM)	1.698	90% gamma percentile (KM)	2.137
95% gamma percentile (KM)	2.548	99% gamma percentile (KM)	3.446

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3.272	3.393	95% Approx. Gamma UPL	2.576	2.621
95% KM Gamma Percentile	2.458	2.493	95% Gamma USL	3.744	3.929

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.859	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.91	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.277	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.19	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	1.154	Mean in Log Scale	-0.0664
SD in Original Scale	0.713	SD in Log Scale	0.688
95% UTL95% Coverage	4.585	95% BCA UTL95% Coverage	2.244
95% Bootstrap (%) UTL95% Coverage	2.25	95% UPL (t)	3.119
90% Percentile (z)	2.261	95% Percentile (z)	2.903
99% Percentile (z)	4.64	95% USL	5.774

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-0.0149	95% KM UTL (Lognormal)95% Coverage	3.916
KM SD of Logged Data	0.598	95% KM UPL (Lognormal)	2.803
95% KM Percentile Lognormal (z)	2.633	95% KM USL (Lognormal)	4.784

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1.101	Mean in Log Scale	-0.217
SD in Original Scale	0.769	SD in Log Scale	0.873
95% UTL95% Coverage	6.044	95% UPL (t)	3.707
90% Percentile (z)	2.464	95% Percentile (z)	3.384
99% Percentile (z)	6.136	95% USL	8.097

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs (no distinction made between detects and nondetects)

Order of Statistic, r	24	95% UTL with95% Coverage	2.25
Approx, f used to compute achieved CC	1.263	Approximate Actual Confidence Coefficient achieved by UTL	0.708

Approximate Sample Size needed to achieve specified CC	59	95% UPL	2.24
95% USL	2.25	95% KM Chebyshev UPL	4.178

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Lithium

General Statistics

Total Number of Observations	24	Number of Missing Observations	0
Number of Distinct Observations	21		
Number of Detects	20	Number of Non-Detects	4
Number of Distinct Detects	20	Number of Distinct Non-Detects	1
Minimum Detect	2.13	Minimum Non-Detect	2
Maximum Detect	5.52	Maximum Non-Detect	2
Variance Detected	1.133	Percent Non-Detects	16.67%
Mean Detected	3.961	SD Detected	1.064
Mean of Detected Logged Data	1.337	SD of Detected Logged Data	0.299

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.309	d2max (for USL)	2.644

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.924	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.868	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.151	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.223	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	3.634	KM SD	1.196
95% UTL95% Coverage	6.396	**95% KM UPL (t)**	**5.726**

90% KM Percentile (z)	5.167	95% KM Percentile (z)	5.601
99% KM Percentile (z)	6.416	95% KM USL	6.796

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	3.467	SD	1.485
95% UTL95% Coverage	6.897	95% UPL (t)	6.065
90% Percentile (z)	5.371	95% Percentile (z)	5.91
99% Percentile (z)	6.922	95% USL	7.394

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.707	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.742	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.159	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.194	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	12.89	k star (bias corrected MLE)	10.99
Theta hat (MLE)	0.307	Theta star (bias corrected MLE)	0.36
nu hat (MLE)	515.6	nu star (bias corrected)	439.6
MLE Mean (bias corrected)	3.961		
MLE Sd (bias corrected)	1.195	95% Percentile of Chisquare (2kstar)	33.9

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	1.555	Mean	3.623
Maximum	5.52	Median	3.745
SD	1.242	CV	0.343
k hat (MLE)	7.894	k star (bias corrected MLE)	6.935
Theta hat (MLE)	0.459	Theta star (bias corrected MLE)	0.522

nu hat (MLE)	378.9	nu star (bias corrected)	332.9
MLE Mean (bias corrected)	3.623	MLE Sd (bias corrected)	1.376
95% Percentile of Chisquare (2kstar)	23.51	90% Percentile	5.459
95% Percentile	6.141	99% Percentile	7.562

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	7.353	7.524	95% Approx. Gamma UPL	6.233	6.314
95% Gamma USL	8.084	8.326			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	3.634	SD (KM)	1.196
Variance (KM)	1.431	SE of Mean (KM)	0.251
k hat (KM)	9.229	k star (KM)	8.103
nu hat (KM)	443	nu star (KM)	388.9
theta hat (KM)	0.394	theta star (KM)	0.448
80% gamma percentile (KM)	4.642	90% gamma percentile (KM)	5.335
95% gamma percentile (KM)	5.956	99% gamma percentile (KM)	7.24

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	7.137	7.279	95% Approx. Gamma UPL	6.093	6.159
95% KM Gamma Percentile	5.91	5.965	95% Gamma USL	7.816	8.019

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.885	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.92	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.182	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.176	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	3.632	Mean in Log Scale	1.228
SD in Original Scale	1.227	SD in Log Scale	0.371
95% UTL95% Coverage	8.04	95% BCA UTL95% Coverage	5.52
95% Bootstrap (%) UTL95% Coverage	5.52	95% UPL (t)	6.533
90% Percentile (z)	5.493	95% Percentile (z)	6.285
99% Percentile (z)	8.092	95% USL	9.103

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	1.23	95% KM UTL (Lognormal)95% Coverage	7.821
KM SD of Logged Data	0.358	95% KM UPL (Lognormal)	6.4
95% KM Percentile Lognormal (z)	6.165	95% KM USL (Lognormal)	8.817

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	3.467	Mean in Log Scale	1.114
SD in Original Scale	1.485	SD in Log Scale	0.577
95% UTL95% Coverage	11.55	95% UPL (t)	8.36
90% Percentile (z)	6.383	95% Percentile (z)	7.871
99% Percentile (z)	11.66	95% USL	14.01

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs (no distinction made between detects and nondetects)

Order of Statistic, r	24	95% UTL with95% Coverage	5.52
Approx, f used to compute achieved CC	1.263	Approximate Actual Confidence Coefficient achieved by UTL	0.708
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5.455
95% USL	5.52	95% KM Chebyshev UPL	8.955

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Radium-226/228

General Statistics

Total Number of Observations	24	Number of Missing Observations	0
Number of Distinct Observations	23		
Number of Detects	18	Number of Non-Detects	6
Number of Distinct Detects	18	Number of Distinct Non-Detects	6
Minimum Detect	0.732	Minimum Non-Detect	0.811
Maximum Detect	8.12	Maximum Non-Detect	3.01
Variance Detected	3.888	Percent Non-Detects	25%
Mean Detected	3.446	SD Detected	1.972
Mean of Detected Logged Data	1.075	SD of Detected Logged Data	0.607

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.309	d2max (for USL)	2.644

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.926	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.184	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.235	Detected Data appear Normal at 1% Significance Level	

Detected Data appear Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	2.89	KM SD	1.943
95% UTL95% Coverage	7.376	**95% KM UPL (t)**	**6.288**
90% KM Percentile (z)	5.38	95% KM Percentile (z)	6.085
99% KM Percentile (z)	7.41	95% KM USL	8.027

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	2.821	SD	2.035
95% UTL95% Coverage	7.518	95% UPL (t)	6.379
90% Percentile (z)	5.428	95% Percentile (z)	6.167
99% Percentile (z)	7.554	95% USL	8.2

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.263	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.745	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.14	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.205	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.24	k star (bias corrected MLE)	2.737
Theta hat (MLE)	1.064	Theta star (bias corrected MLE)	1.259
nu hat (MLE)	116.6	nu star (bias corrected)	98.52
MLE Mean (bias corrected)	3.446		
MLE Sd (bias corrected)	2.083	95% Percentile of Chisquare (2kstar)	11.8

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.361	Mean	2.832
Maximum	8.12	Median	2.195
SD	2.029	CV	0.716
k hat (MLE)	1.947	k star (bias corrected MLE)	1.731
Theta hat (MLE)	1.455	Theta star (bias corrected MLE)	1.636
nu hat (MLE)	93.45	nu star (bias corrected)	83.1
MLE Mean (bias corrected)	2.832	MLE Sd (bias corrected)	2.152
95% Percentile of Chisquare (2kstar)	8.602	90% Percentile	5.7
95% Percentile	7.036	99% Percentile	10.03

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	9.642	10.32	95% Approx. Gamma UPL	7.256	7.536
95% Gamma USL	11.29	12.31			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2.89	SD (KM)	1.943
Variance (KM)	3.775	SE of Mean (KM)	0.412
k hat (KM)	2.212	k star (KM)	1.963
nu hat (KM)	106.2	nu star (KM)	94.24
theta hat (KM)	1.306	theta star (KM)	1.472
80% gamma percentile (KM)	4.336	90% gamma percentile (KM)	5.645
95% gamma percentile (KM)	6.894	99% gamma percentile (KM)	9.67

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	8.977	9.426	95% Approx. Gamma UPL	6.888	7.062
95% KM Gamma Percentile	6.539	6.676	95% Gamma USL	10.41	11.1

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.971	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.914	Detected Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.103	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.185	Detected Data appear Lognormal at 10% Significance Level	

Detected Data appear Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	2.9	Mean in Log Scale	0.857
SD in Original Scale	1.957	SD in Log Scale	0.662
95% UTL95% Coverage	10.87	95% BCA UTL95% Coverage	8.12
95% Bootstrap (%) UTL95% Coverage	8.12	95% UPL (t)	7.504
90% Percentile (z)	5.505	95% Percentile (z)	7.003
99% Percentile (z)	11	95% USL	13.57

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.827	95% KM UTL (Lognormal)95% Coverage	11.73
KM SD of Logged Data	0.708	95% KM UPL (Lognormal)	7.89

95% KM Percentile Lognormal (z)	7.328	95% KM USL (Lognormal)	14.87

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	2.821	Mean in Log Scale	0.765
SD in Original Scale	2.035	SD in Log Scale	0.798
95% UTL95% Coverage	13.56	95% UPL (t)	8.677
90% Percentile (z)	5.974	95% Percentile (z)	7.983
99% Percentile (z)	13.75	95% USL	17.72

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs (no distinction made between detects and nondetects)

Order of Statistic, r	24	95% UTL with95% Coverage	8.12
Approx, f used to compute achieved CC	1.263	Approximate Actual Confidence Coefficient achieved by UTL	0.708
Approximate Sample Size needed to achieve specified CC	59	95% UPL	7.635
95% USL	8.12	95% KM Chebyshev UPL	11.53

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Appendix B
Background Data Set for October 2023 Semiannual Detection Monitoring Event

Appendix B Background Data Set for October 2023 Semiannual Detection Monitoring Event

EVENT	WELL	CONSTITUENT/RESULT						
		BORON (µg/L)	CALCIUM (µg/L)	CHLORIDE (mg/L)	FLUORIDE (mg/L)	FIELD pH (S.U.)	SULFATE (mg/L)	TDS (mg/L)
BL-1	AS-LF-03	8.33 J	796	5.77	0.0589 J	4.41	0.374 J	< 2.38
BL-2	AS-LF-03	6.34 J	661	6.07	< 0.0330	4.26	0.375 J	30.0
BL-3	AS-LF-03	5.24 J	760	6.33	0.0414 J	4.30	0.397 J	19.0
BL-4	AS-LF-03	7.33 J	721	5.88	< 0.0330	4.34	0.251 J	< 2.38
BL-5	AS-LF-03	7.14 J	682	6.07	0.0386 J	4.32	0.859	5.00 J
BL-6	AS-LF-03	6.65 J	732	6.10	0.0460 J	4.17	1.14	8.00
BL-7	AS-LF-03	6.67 J	797	5.94	0.0340 J	4.29	0.474	< 2.38
BL-8	AS-LF-03	5.38 J	799	6.31	0.0432 J	4.09	1.37	14.0
BL-1	MW-BG-74	11.2 J	3,680	4.24	0.0796 J	5.58	5.16	73.0
BL-2	MW-BG-74	9.20 J	4,150	4.26	0.0882 J	5.52	6.26	32.0
BL-3	MW-BG-74	8.99 J	3,340	4.13	0.0971 J	5.50	4.75	30.0
BL-4	MW-BG-74	9.32 J	2,880	4.19	0.0579	5.45	3.75	5.00 J
BL-5	MW-BG-74	7.93 J	2,760	4.09	0.0460 J	5.29	2.25	19.0
BL-6	MW-BG-74	8.55	2,520	4.14	0.0402 J	5.37	3.06	23.0
BL-7	MW-BG-74	7.14 J	2,250	4.08	0.0403 J	5.05	1.88	6.00
BL-8	MW-BG-74	6.36 J	1,910	4.06	< 0.0330	5.18	1.49	5.00
BL-1	MW-LF-01D	12.7 J	5,080	7.78	0.0811 J	5.69	12.0	46.0
BL-2	MW-LF-01D	9.94 J	3,870	7.17	< 0.0330	5.43	4.73	34.0
BL-3	MW-LF-01D	9.54 J	1,050	7.18	< 0.0330	4.65	0.757	27.0

Appendix B Background Data Set for October 2023 Semiannual Detection Monitoring Event

EVENT	WELL	CONSTITUENT/RESULT						
		BORON (µg/L)	CALCIUM (µg/L)	CHLORIDE (mg/L)	FLUORIDE (mg/L)	FIELD pH (S.U.)	SULFATE (mg/L)	TDS (mg/L)
BL-4	MW-LF-01D	9.38 J	985	7.13	< 0.0330	4.70	0.406	4.00 J
BL-5	MW-LF-01D	8.59 J	846	7.11	< 0.0330	4.51	0.887	14.0
BL-6	MW-LF-01D	7.54	794	7.03	< 0.0330	4.68	1.46	18.0
BL-7	MW-LF-01D	7.97 J	780	7.03	< 0.0330	4.44	0.475	3.00
BL-8	MW-LF-01D	6.56 J	714	7.11	< 0.0330	4.38	1.00	9.00

pH expressed in standard units (S.U.).

TDS = Total dissolved solids.

µg/L = micrograms per liter.

mg/L = milligrams per liter.

BL = Baseline sampling event.

J Estimated concentration.
< Result less than the indicated detection limit.

References

OBG 2017. *Statistical Analysis Plan* – SCE&G Wateree Station Class III Landfill, Eastover, South Carolina. O'Brein & Gere Inc. (OBG), October 17, 2017.

TRC 2023a. *Class III Landfill Groundwater Monitoring System Certification* per 40 CFR 257.91 (f), Wateree Generating Station, Eastover, South Carolina. TRC Environmental Corporation (TRC), October 6, 2023.