DOMINION ENERGY SOUTH CAROLINA

WATEREE STATION FLUE GAS DESULFURIZATION POND

RICHLAND COUNTY, SOUTH CAROLINA

EPA CCR RULE COMPLIANCE

2023 CCR ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

January 31, 2024

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Table of Contents

List of Tables

List of Figures

List of Appendices

Executive Summary

Dominion Energy South Carolina (DESC) operates a Flue Gas Desulfurization (FGD) Wastewater Pond (FDG Pond) (Unit) for the management of coal combustion residuals (CCR) at the Wateree Generating Station (Station) located in Eastover, Richland County, South Carolina. The Unit is used to manage wastewater generated from the FGD scrubber system 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:
  - Boron – MW-FGD-02 and MW-FGD-05

- Calcium – MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05
- Chloride – MW-FGD-04 and MW-FGD-05
- pH – MW-FGD-05
- Sulfate – MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05
- TDS – MW-FGD-05

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 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 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 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 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 Flue Gas Desulfurization (FGD) Wastewater Pond (FGD Pond) (Unit) at the Wateree Generating Station (Station) located in Eastover, Richland County, South Carolina. The Unit is used to manage wastewater generated from the FGD scrubber system and includes two forebays (1.10 and 1.15-acres), a primary settling pond, and a secondary settling pond.

The Unit is managed in accordance with 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 800 feet from the generating plant.

1.2 Site History

The Wateree Generating Station is an active coal-fired power station that includes two identical generating units. Units 1 and 2, which began operation in 1970 and 1971, respectively, each have a gross generating capacity of 372-megawatts. The Station includes the flue gas desulfurization pond (Unit) which was constructed in accordance with construction permit (No. 19263-IW) issued from the South Carolina Department of Health and Environmental Control (SC DHEC) in December 2009 and placed into operation in accordance with an approval issued by SC DHEC in April 2010. The Unit is maintained by periodic dewatering to remove particulate material and is disposed in the onsite Landfill.

The Station has three units regulated under the United States Environmental Protection Agency (EPA) CCR Rule: the FGD Pond (Unit), the Ash Pond, and the Landfill. **Figure 1** illustrates the locations of these CCR units. Effluent discharge for the Unit is monitored and permitted under a National Pollutant Discharge System (NPDES) permit (Permit No. SC0002038) issued by SC DHEC.

1.3 Key Actions

Key actions for the Unit to date are as follows:

- Initiated the Detection Monitoring Program (DMP) on May 10, 2016, with the collection of eight (8) baseline/background samples and completed the background monitoring activities on July 24, 2017, pursuant to 40 CFR §257.94(b).
- Conducted the initial DMP compliance sampling event on September 19, 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.
- In March 2023, an Alternate Source Demonstration (ASD) was completed per 40 CFR §257.94(e)(2) 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.
- Conducted the first semiannual 2023 detection monitoring between March 13-16, 2023, and completed the sample analysis on March 29, 2023, pursuant to the CCR Rule [§257.94(b)].
- In September 2023, a successful ASD was completed 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.
- In December 2022, DESC installed a new groundwater monitoring well (MW-FGD-06) upgradient (northeast) of the Unit as part of an evaluation of the EPA CCR Compliance Monitoring Well.

- Network performed by TRC Environmental Corporation (TRC) in July 2022. The newly installed groundwater monitoring well was 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).
- 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.
- Conducted the second semiannual 2023 detection monitoring on October 10, 2023, and completed the sample analysis on October 26, 2023 (revised November 20, 2023), pursuant to the CCR Rule [§257.94(b)].
- 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-FGD-01, MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05) were installed in March 2016 at the Unit to serve as the EPA CCR Compliance Monitoring Well Network. Three ASD monitoring wells (AS-FGD-01, AS-FGD-02, and AS-FGD-03) were installed in July 2017 to support an ASD evaluation. The results of the ASD, performed by others, were presented in the April 2018 *Alternate Source Demonstration Report, Wateree Station FGD Pond* and demonstrated the SSIs were not due to a release from the Unit at the Station and no further actions were warranted. Monitoring well AS-FGD-01 was included into the Compliance Monitoring Well Network while wells AS-FGD-02 and AS-FGD-03 serve to support potential ASD evaluations. Additionally, wells MW-AP-01A (background well for the Ash Pond) and MW-BG-73 (background well for the Landfill) were added to the Compliance Monitoring Well Network.

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 the evaluation, an additional monitoring well (MW-FGD-06) was installed upgradient (northeast) of the CCR Unit in December 2022 and was 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-BG-73 and MW-AP-01A were removed from the CCR monitoring well network and repurposed for the measurement of water levels only. Both wells were determined to not be ideally located upgradient of the Unit.
- New monitoring well MW-FGD-06 was installed at the northwestern corner of the Unit boundary to replace wells MW-BG-73 and MW-AP-01A.

Pursuant to 40 CFR §257.91, the new monitoring well was 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 - AS-FGD-01, MW-AP-01A, MW-BG-73, and MW-FGD-01.
- Downgradient monitoring wells - MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05.

Monitoring wells AS-FGD-02 and AS-FGD-03 are used to support ASD evaluations. 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 September 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-FGD-01, MW-FGD-06, and AS-FGD-01.
- Downgradient monitoring wells - MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05.

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 the CCR Rule 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 10 (**Figure 4**) and October 10 (**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 104 to 120 ft/year. Furthermore, the overall interpreted data indicates that the groundwater flow direction and velocity remain consistent with previous calculations for the Unit. 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 24% and estimated average hydraulic conductivity value of 9.01 ft/day, the average rate of groundwater flow for the uppermost aquifer beneath the Unit was calculated to be 119.53 ft/year.

Well 1	Well 2	h^1 (ft)	h^2 (ft)	S (ft)	i	K (ft/day)	n_e	V_S (ft/day)	V_S (ft/yr.)
MW-FGD-01	MW-FGD-04	115.19	107.13	1,255	0.0064	9.01	0.24	0.2391	87.28
AS-FGD-01	AS-FGD-02	109.80	104.38	530	0.0102			0.3807	138.97
MW-FGD-06	MW-FGD-05	114.72	107.99	685	0.0098			0.3658	133.51
MW-LF-11	MW-FGD-02	113.49	103.78	1,115	0.0087			0.3242	118.34
1) Hydraulic conductivity and effective porosity values from February 2021: Analysis of Groundwater Flow Rate and Direction – FGD Pond Wells (Nautilus 2021). Results from the March 2023 slug test conducted by TRC are also included in the hydraulic conductivity estimate (TRC 2023a)						Average		0.3275	119.53

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 24% and estimated average hydraulic conductivity value of 9.01 ft/day, the average rate of groundwater flow for the uppermost aquifer beneath the Unit was calculated to be 104.20 ft/year.

Well 1	Well 2	h^1 (ft)	h^2 (ft)	S (ft)	i	K (ft/day)	n_e	V_S (ft/day)	V_S (ft/yr.)
MW-FGD-01	MW-FGD-04	114.40	106.84	1,255	0.0060	9.01	0.24	0.2243	81.86
AS-FGD-01	AS-FGD-02	109.49	104.48	530	0.0095			0.3519	128.46
MW-FGD-06	MW-FGD-05	112.82	107.48	685	0.0078			0.2902	105.94
MW-LF-11	MW-FGD-02	113.09	104.84	1,115	0.0074			0.2755	100.55
1) Hydraulic conductivity and effective porosity values from February 2021: Analysis of Groundwater Flow Rate and Direction – FGD Pond Wells (Nautilus 2021). Results from the March 2023 slug test conducted by TRC are also included in the hydraulic conductivity estimate (TRC 2023a)						Average		0.2855	104.20

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 completed 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 13 – 16, 2023	March 29, 2023
Second Semiannual Detection Monitoring Program Event	October 10, 2023	October 26, 2023 (Revised November 20, 2023)

During each of the DMP sampling events, the compliance monitoring wells were sampled in accordance with the Station's Groundwater Monitoring Program (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 US EPA data validation guidelines. 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 AS-FGD-03 on March 13, 2023.
- Additional sample volume was collected at MW-FGD-05 on March 14, 2025, to allow for the laboratory to conduct a matrix spike (MS) and matrix spike duplicate (MSD) quality control check.
- A field blank was collected at MW-FGD-05 on March 14, 2023, using laboratory provided deionized water. The field blank was used to assess for 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 AS-FGD-01 on October 10, 2023.
- Additional sample volume was collected at MW-FGD-06 on October 11, 2023, to allow for the laboratory to conduct a MS/MSD quality control check.
- A field blank was collected at MW-FGD-03 on October 11, 2023, using laboratory provided deionized water. The field blank was used to assess for 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 §257.94, 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**):

- Calcium (MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05)
- Chloride (MW-FGD-04 and MW-FGD-05)
- pH (MW-FGD-05)
- Sulfate (MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05)
- TDS (MW-FGD-05)

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 §257.94, TRC evaluated Appendix III constituent detections against site-specific background values that were established for the DMP (**Appendix F**). Based on that evaluation, the following Appendix III SSIs were identified for the second semiannual 2023 event (**Table 3**):

- Boron (MW-FGD-02 and MW-FGD-05)
- Calcium (MW-FGD-03 and MW-FGD-05)
- Chloride (MW-FGD-05)
- TDS (MW-FGD-05)

Section 7
Conclusions

7.1 Findings

The first semiannual 2023 DMP compliance sampling event was conducted on March 13-16, 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 completed on October 26, 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 calcium (MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05), chloride (MW-FGD-04 and MW-FGD-05), pH (MW-FGD-05), sulfate (MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05), and TDS (MW-FGD-05). DESC completed a successful ASD 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 boron (MW-FGD-02 and MW-FGD-05), calcium (MW-FGD-03 and MW-FGD-05), chloride (MW-FGD-05), and TDS (MW-FGD-05).

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

Environmental Protection Agency (EPA). 2015. Federal Register. Volume 80. No. 74. Friday April 17, 2015. Part II. Environmental Protection Agency. *40 CFR Parts 257and 261. Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule.* [EPA-HQ-RCRA–2009–0640; FRL–9919–44–OSWER]. RIN–2050–AE81.

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TRC 2022. Evaluation of CCR Well Network Technical Memorandum, Wateree Station FGD Pond. Eastover, South Carolina: TRC Environmental Corporation

TRC 2023a. Groundwater Monitoring Well Installation Report, Wateree Station FGD Pond. Eastover, South Carolina: TRC Environmental Corporation.

TRC 2023b. Groundwater Monitoring System Certification, Wateree Station FGD Pond. Eastover, South Carolina: TRC Environmental Corporation.

TRC 2023c. Baseline Statistical Evaluation Report, Wateree Station FGD Pond. Eastover, 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 Wateree Generating Station FGD Pond. 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 FGD Pond
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-FGD-01	139.14	5/11/2016	21.84	117.30
		7/11/2016	23.27	115.87
		9/19/2016	23.97	115.17
		11/15/2016	24.12	115.02
		1/17/2017	22.86	116.28
		3/20/2017	23.29	115.85
		5/22/2017	22.99	116.15
		7/24/2017	23.07	116.07
		9/27/2017	24.16	114.98
		11/1/2017	24.63	114.51
		11/14/2017	24.78	114.36
		3/5/2018	24.97	114.17
		9/10/2018	25.04	114.10
		11/20/2018	23.95	115.19
		3/6/2019	21.91	117.23
		5/1/2019	22.83	116.31
		8/27/2019	24.94	114.20
		11/18/2019	25.77	113.37
		3/10/2020	21.49	117.65
		5/26/2020	23.48	115.66
		9/15/2020	23.89	115.25
		10/28/2020	23.32	115.82
		3/8/2021	21.52	117.62
		9/20/2021	24.22	114.92
		3/15/2022	24.51	114.63
		9/6/2022	25.28	113.86
		1/12/2023	25.41	113.73
		2/13/2023	24.10	115.04
		3/10/2023	23.95	115.19
		4/10/2023	22.80	116.34
		5/16/2023	23.54	115.60
		6/12/2023	24.01	115.13
		7/17/2023	23.95	115.19
		8/17/2023	24.36	114.78
		10/10/2023	24.74	114.40

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 FGD Pond
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-FGD-02	121.24	5/11/2016	9.52	111.72
		7/12/2016	17.86	103.38
		9/20/2016	15.90	105.34
		11/16/2016	16.10	105.14
		1/18/2017	16.16	105.08
		3/21/2017	16.32	104.92
		5/23/2017	16.11	105.13
		7/26/2017	16.12	105.12
		9/27/2017	16.27	104.97
		11/1/2017	16.42	104.82
		11/14/2017	16.47	104.77
		3/5/2018	16.70	104.54
		9/10/2018	16.69	104.55
		11/21/2018	16.38	104.86
		3/6/2019	16.02	105.22
		5/1/2019	16.23	105.01
		8/28/2019	16.60	104.64
		3/10/2020	15.10	106.14
		5/27/2020	16.21	105.03
		9/15/2020	16.21	105.03
		10/27/2020	16.21	105.03
		3/8/2021	15.92	105.32
		9/20/2021	16.31	104.93
		3/15/2022	16.58	104.66
		9/6/2022	16.60	104.64
		3/10/2023	17.46	103.78
		4/10/2023	16.11	105.13
		5/16/2023	15.98	105.26
		6/12/2023	16.39	104.85
		7/17/2023	16.25	104.99
		8/17/2023	16.32	104.92
		10/10/2023	16.40	104.84

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 FGD Pond
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-FGD-03	123.29	5/12/2016	11.31	111.98
		7/12/2016	18.30	104.99
		9/20/2016	17.31	105.98
		11/16/2016	17.52	105.77
		1/18/2017	17.52	105.77
		3/21/2017	17.64	105.65
		5/23/2017	17.42	105.87
		7/26/2017	17.48	105.81
		9/27/2017	17.68	105.61
		11/1/2017	17.85	105.44
		11/14/2017	17.90	105.39
		3/5/2018	18.09	105.20
		9/10/2018	18.08	105.21
		11/21/2018	17.81	105.48
		3/6/2019	17.40	105.89
		5/1/2019	17.43	105.86
		8/28/2019	18.07	105.22
		11/19/2019	18.23	105.06
		3/10/2020	17.39	105.90
		9/15/2020	17.54	105.75
		10/27/2020	17.53	105.76
		3/8/2021	17.12	106.17
		9/20/2021	17.73	105.56
		3/15/2022	18.02	105.27
		9/6/2022	18.08	105.21
		3/10/2023	17.85	105.44
		4/10/2023	17.66	105.63
		5/16/2023	14.95	108.34
		6/12/2023	17.77	105.52
		7/17/2023	17.65	105.64
		8/17/2023	17.74	105.55
		10/10/2023	17.85	105.44

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 FGD Pond
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-FGD-04	122.79	5/12/2016	10.25	112.54
		7/12/2016	15.31	107.48
		9/20/2016	15.25	107.54
		11/16/2016	15.51	107.28
		1/18/2017	15.28	107.51
		3/21/2017	15.43	107.36
		5/23/2017	15.11	107.68
		7/26/2017	15.28	107.51
		9/28/2017	15.69	107.10
		11/1/2017	15.90	106.89
		11/14/2017	15.95	106.84
		3/5/2018	16.08	106.71
		9/10/2018	16.03	106.76
		3/6/2019	14.99	107.80
		5/1/2019	15.10	107.69
		8/28/2019	16.10	106.69
		11/19/2019	16.55	106.24
		3/10/2020	14.85	107.94
		5/27/2020	15.50	107.29
		9/15/2020	15.46	107.33
		10/28/2020	15.44	107.35
		3/8/2021	14.59	108.20
		9/20/2021	15.72	107.07
		3/15/2022	16.03	106.76
		9/6/2022	16.23	106.56
		3/10/2023	15.66	107.13
		4/10/2023	15.40	107.39
		5/16/2023	15.52	107.27
		6/12/2023	15.73	107.06
		7/17/2023	15.45	107.34
		8/17/2023	15.75	107.04
		10/10/2023	15.95	106.84

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 FGD Pond 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-FGD-05	123.35	5/12/2016	10.77	112.58
		7/11/2016	15.03	108.32
		9/19/2016	15.22	108.13
		11/16/2016	15.54	107.81
		1/18/2017	15.01	108.34
		3/21/2017	15.35	108.00
		5/23/2017	14.91	108.44
		7/26/2017	15.14	108.21
		9/28/2017	15.60	107.75
		11/1/2017	15.91	107.44
		11/14/2017	15.96	107.39
		3/5/2018	15.94	107.41
		9/10/2018	15.81	107.54
		11/21/2018	15.28	108.07
		3/6/2019	14.68	108.67
		5/1/2019	14.87	108.48
		8/28/2019	16.11	107.24
		11/19/2019	16.51	106.84
		3/10/2020	14.34	109.01
		9/15/2020	15.18	108.17
		3/8/2021	15.10	108.25
		9/20/2021	15.65	107.70
		3/15/2022	15.90	107.45
		9/6/2022	16.13	107.22
		3/10/2023	15.36	107.99
		4/10/2023	14.38	108.97
		5/16/2023	15.30	108.05
		6/12/2023	15.61	107.74
		7/17/2023	15.15	108.20
		8/17/2023	15.63	107.72
		10/10/2023	15.87	107.48

Table 1
Summary of Historical CCR Static Water Level Data
Dominion Energy South Carolina - Wateree Station FGD Pond
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-FGD-06	129.72	1/12/2023	17.21	112.51
		2/13/2023	16.27	113.45
		3/10/2023	15.00	114.72
		4/10/2023	15.13	114.59
		5/16/2023	15.85	113.87
		6/12/2023	16.23	113.49
		7/17/2023	15.99	113.73
		8/17/2023	16.56	113.16
		10/10/2023	16.90	112.82

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 FGD Pond
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-FGD-01	126.29	7/25/2017	15.84	110.45
		9/27/2017	16.31	109.98
		10/11/2017	16.45	109.84
		11/1/2017	16.70	109.59
		11/14/2017	16.73	109.56
		3/5/2018	16.97	109.32
		9/11/2018	16.90	109.39
		11/20/2018	16.47	109.82
		3/6/2019	15.30	110.99
		5/1/2019	15.46	110.83
		8/27/2019	16.84	109.45
		11/19/2019	17.64	108.65
		3/10/2020	15.38	110.91
		5/27/2020	15.97	110.32
		9/15/2020	16.01	110.28
		10/26/2020	15.87	110.42
		3/8/2021	14.85	111.44
		9/20/2021	16.36	109.93
		3/15/2022	16.88	109.41
		9/6/2022	17.19	109.10
		1/12/2023	17.37	108.92
		2/13/2023	16.88	109.41
		3/10/2023	16.49	109.80
		4/10/2023	16.30	109.99
		5/16/2023	16.15	110.14
		6/12/2023	16.38	109.91
		7/17/2023	16.25	110.04
		8/17/2023	16.50	109.79
		10/10/2023	16.80	109.49

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 FGD Pond
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-FGD-02	120.43	7/25/2017	15.78	104.65
		9/27/2017	15.91	104.52
		10/11/2017	15.97	104.46
		11/1/2017	16.04	104.39
		11/14/2017	16.05	104.38
		3/6/2018	16.31	104.12
		9/11/2018	16.25	104.18
		3/6/2019	15.80	104.63
		8/28/2019	16.15	104.28
		3/10/2020	15.78	104.65
		5/27/2020	15.96	104.47
		9/15/2020	15.81	104.62
		10/27/2020	15.86	104.57
		3/8/2021	15.60	104.83
		9/20/2021	15.90	104.53
		3/15/2022	16.13	104.30
		9/6/2022	16.12	104.31
		3/10/2023	16.05	104.38
		4/10/2023	15.85	104.58
		5/16/2023	15.98	104.45
		6/12/2023	15.91	104.52
		7/17/2023	15.80	104.63
		8/17/2023	15.84	104.59
		10/10/2023	15.95	104.48

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 FGD Pond
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-FGD-03	119.41	7/25/2017	15.83	103.58
		9/27/2017	14.99	104.42
		10/11/2017	15.04	104.37
		11/1/2017	15.12	104.29
		11/14/2017	15.16	104.25
		3/6/2018	15.39	104.02
		9/11/2018	15.25	104.16
		3/6/2019	14.79	104.62
		8/28/2019	15.21	104.20
		3/10/2020	14.68	104.73
		5/27/2020	14.87	104.54
		9/15/2020	14.81	104.60
		10/26/2020	14.86	104.55
		3/8/2021	14.59	104.82
		9/20/2021	14.98	104.43
		3/15/2022	15.13	104.28
		9/6/2022	15.07	104.34
		3/10/2023	14.97	104.44
		4/10/2023	14.75	104.66
		5/16/2023	14.95	104.46
		6/12/2023	14.85	104.56
		7/17/2023	14.70	104.71
		8/17/2023	14.82	104.59
		10/10/2023	14.93	104.48

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 FGD Pond 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
		3/27/2022	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

Table 1 Summary of Historical CCR Static Water Level Data Dominion Energy South Carolina - Wateree Station FGD Pond 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-AP-01A	127.97	5/11/2016	12.41	115.56
		7/11/2016	13.91	114.06
		9/19/2016	13.78	114.19
		11/15/2016	14.28	113.69
		1/17/2017	12.60	115.37
		3/20/2017	13.58	114.39
		5/22/2017	13.78	114.19
		7/10/2017	13.91	114.06
		9/26/2017	14.04	113.93
		3/5/2018	14.64	113.33
		6/4/2018	14.76	113.21
		9/10/2018	14.74	113.23
		11/20/2018	13.37	114.60
		12/11/2018	12.72	115.25
		3/6/2019	11.71	116.26
		8/28/2019	15.14	112.83
		3/9/2020	11.00	116.97
		9/14/2020	14.67	113.30
		3/8/2021	11.69	116.28
		9/15/2021	14.26	113.71
		3/15/2022	14.10	113.87
		9/6/2022	15.01	112.96
		3/10/2023	13.47	114.50
		5/16/2023	13.46	114.51
		7/17/2023	13.65	114.32
		8/17/2023	14.35	113.62
		10/10/2023	14.64	113.33

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

			Background Wells												Downgradient Wells							
		Sample ID:	MW-AP-01A				MW-BG-73				MW-FGD-01				MW-FGD-02				MW-FGD-03			
		Sample Date:	03/14/2023				03/15/2023				03/13/2023				03/13/2023				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	58.5	13.5	U	13.5	15.0	**6.60**	J	4.00	15.0	**7.56**	J	4.00	15.0	**24.8**	J	20.0	75.0	**11.3**	J	4.00	15.0
Calcium	µg/L	1,541	**695**		30.0	100	**302**		30.0	100	**1,500**		30.0	100	**8,390**		150	500	**7,020**		30.0	100
Chloride	mg/L	10.3	**5.72**		0.0670	0.200	2.40	U	2.40	2.40	**9.45**		0.134	0.400	**7.36**		0.0670	0.200	**6.59**		0.0670	0.200
Fluoride	mg/L	0.1	0.0330	U	0.0330	0.100	0.0330	U	0.0330	0.100	**0.0672**	J	0.0330	0.100	0.0330	U	0.0330	0.100	**0.0905**	J	0.0330	0.100
pH	SU	3.65 - 5.27	4.91		0.01	0.01	4.65		0.1	0.1	4.42		0.01	0.01	5.26		0.01	0.01	5.13		0.01	0.01
Sulfate	mg/L	0.883	**0.500**		0.133	0.400	**0.265**	J	0.133	0.400	**0.962**		0.133	0.400	**8.59**		0.133	0.400	**25.8**		0.266	0.800
Total Dissolved Solids	mg/L	68.6	**6.00**	J	2.38	10.0	2.38	U	2.38	10.0	**14.0**		2.38	10.0	**36.0**		2.38	10.0	**39.0**		2.38	10.0
Field Parameters																						
Conductivity	µS/cm	--	42.17		0.1	0.1	22.99		0.1	0.1	68.53		0.1	0.1	89.80		0.1	0.1	128.29		0.1	0.1
Dissolved Oxygen	mg/L	--	1.76		0.01	0.01	6.17		0.01	0.01	4.08		0.01	0.01	2.28		0.01	0.01	4.13		0.01	0.01
Oxidation Reduction Potential	millivolts	--	179.9		0.1	0.1	163.3		0.1	0.1	105.6		0.1	0.1	123.0		0.1	0.1	111.9		0.1	0.1
Temperature	C	--	18.40		0.01	0.01	18.44		0.01	0.01	16.31		0.01	0.01	18.20		0.01	0.01	17.34		0.01	0.01
Turbidity	NTU	--	2.06		0.1	0.1	11.53		0.1	0.1	1.25		0.1	0.1	1.15		0.1	0.1	3.29		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

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 FGD Pond
Eastover, Richland County, South Carolina

			Downgradient Wells								ASD Support Well							
		Sample ID:	MW-FGD-04				MW-FGD-05				AS-FGD-03				AS-FGD-03 Duplicate			
		Sample Date:	03/14/2023				03/14/2023				03/13/2023				03/13/2023			
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	58.5	20.0	U	20.0	75.0	**31.4**		4.00	15.0	**7.17**	J	4.00	15.0	**7.65**	J	4.00	15.0
Calcium	µg/L	1,541	**4,890**		150	500	**25,500**		30.0	100	**1,760**		30.0	100	**1,820**		30.0	100
Chloride	mg/L	10.3	**20.2**		0.335	1.00	**10.6**		0.335	1.00	**9.31**		0.134	0.400	**9.33**		0.134	0.400
Fluoride	mg/L	0.1	**0.0876**	J	0.0330	0.100	**0.0712**	J	0.0330	0.100	**0.0621**	J	0.0330	0.100	**0.0863**	J	0.0330	0.100
pH	SU	3.65 - 5.27	4.31		0.01	0.01	5.60		0.01	0.01			0.01	0.01	--		--	--
Sulfate	mg/L	0.883	**5.24**		0.133	0.400	**22.1**		0.665	2.00	**2.59**		0.133	0.400	**2.62**		0.133	0.400
Total Dissolved Solids	mg/L	68.6	**46.0**		2.38	10.0	**105**		2.38	10.0	**14.0**		2.38	10.0	**9.00**	J	2.38	10.0
Field Parameters																		
Conductivity	µS/cm	--	110.14		0.1	0.1	209.62		0.1	0.1	59.00		0.1	0.1	--		--	--
Dissolved Oxygen	mg/L	--	1.81		0.01	0.01	1.44		0.01	0.01	2.58		0.01	0.01	--		--	--
Oxidation Reduction Potential	millivolts	--	96.3		0.1	0.1	562.0		0.1	0.1	112.6		0.1	0.1	--		--	--
Temperature	C	--	16.59		0.01	0.01	13.40		0.01	0.01	17.90		0.01	0.01	--		--	--
Turbidity	NTU	--	1.77		0.1	0.1	4.49		0.1	0.1	0.81		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

Qualifiers (Qual)

J = Estimated Results

U = Samples reported below their respective MDL

= 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 FGD Pond
Eastover, Richland County, South Carolina

			Background Wells															
		Sample ID:	MW-FGD-01				MW-FGD-06				AS-FGD-01				AS-FGD-01 Duplicate			
		Sample Date:	10/11/2023				10/11/2023				10/11/2023				10/11/2023			
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	21.9	**7.30**	J	4.00	15.0	**10.4**	J	4.00	15.0	**8.29**	J	4.00	15.0	**8.32**	J	4.00	15.0
Calcium	µg/L	3,570	**928**		30.0	100	**1,300**		30.0	100	**1,050**		30.0	100	**1,050**		30.0	100
Chloride	mg/L	11.5	**6.56**		0.0670	0.200	**5.65**		0.0670	0.200	**7.51**		0.0670	0.200	**7.45**		0.0670	0.200
Fluoride	mg/L	0.109	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	4.1 - 5.5	4.54		0.01	0.01	5.07		0.01	0.01	4.30		0.01	0.01	--		--	--
Sulfate	mg/L	34.3	**2.14**		0.133	0.400	**5.91**		0.133	0.400	**1.01**		0.133	0.400	**0.868**		0.133	0.400
Total Dissolved Solids	mg/L	70.8	**3.00**	J	2.38	10.0	**21.0**		2.38	10.0	2.38	UJ	2.38	10.0	**23.0**	J	2.38	10.0
Field Parameters																		
Conductivity	µS/cm	--	47.23		0.1	0.1	75.09		0.1	0.1	56.71		0.1	0.1	--		--	--
Dissolved Oxygen	mg/L	--	4.09		0.01	0.01	4.56		0.01	0.01	5.56		0.01	0.01	--		--	--
Oxidation Reduction Potential	millivolts	--	142.1		0.1	0.1	146		0.1	0.1	172.5		0.1	0.1	--		--	--
Temperature	C	--	19.68		0.01	0.01	24.3		0.01	0.01	22.71		0.01	0.01	--		--	--
Turbidity	NTU	--	0.45		0.1	0.1	4.7		0.1	0.1	0.84		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

Qualifiers (Qual)
J = Estimated Results
U = Samples reported below their respective MDL
UJ = The analyte was not detected; the reporting limit is approximate and may be inaccurate or imprecise
= 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 FGD Pond
Eastover, Richland County, South Carolina

			Downgradient Wells															
		Sample ID:	MW-FGD-02				MW-FGD-03				MW-FGD-04				MW-FGD-05			
		Sample Date:	10/11/2023				10/11/2023				10/11/2023				10/11/2023			
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	21.9	**43.8**		4.00	15.0	**14.8**	J	4.00	15.0	**15.0**		4.00	15.0	**35.0**		4.00	15.0
Calcium	µg/L	3,570	**2,090**		30.0	100	**6,870**		30.0	100	**2,980**		30.0	100	**18,900**		30.0	100
Chloride	mg/L	11.5	**7.13**		0.0670	0.200	**6.60**		0.0670	0.200	**10.2**		0.335	1.00	**13.4**		0.670	2.00
Fluoride	mg/L	0.109	**0.0361**	J	0.0330	0.100	**0.0369**	J	0.0330	0.100	0.0330	U	0.0330	0.100	0.0330	U	0.0330	0.100
pH	SU	4.1 - 5.5	4.48		0.01	0.01	4.99		0.01	0.01	4.25		0.01	0.01	5.27		0.01	0.01
Sulfate	mg/L	34.3	**10.5**		0.133	0.400	**26.0**		0.665	2.00	**7.00**		0.133	0.400	**32.2**		1.33	4.00
Total Dissolved Solids	mg/L	70.8	**6.00**	J	2.38	10.0	**51.0**		2.38	10.0	**8.00**	J	2.38	10.0	**100**		2.38	10.0
Field Parameters																		
Conductivity	µS/cm	--	68.6		0.1	0.1	114.32		0.1	0.1	65.89		0.1	0.1	186.43		0.1	0.1
Dissolved Oxygen	mg/L	--	2.37		0.01	0.01	3.84		0.01	0.01	2.33		0.01	0.01	1.76		0.01	0.01
Oxidation Reduction Potential	millivolts	--	179.4		0.1	0.1	165.1		0.1	0.1	211.1		0.1	0.1	600.7		0.1	0.1
Temperature	C	--	23.43		0.01	0.01	23.91		0.01	0.01	23.55		0.01	0.01	24.14		0.01	0.01
Turbidity	NTU	--	0.33		0.1	0.1	4.35		0.1	0.1	0.75		0.1	0.1	0.25		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

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

Bold font = Detected constituent

Figures

LEGEND

- SITE LOCATION
- USGS 24K QUAD BOUNDARY
- FGD POND 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
FGD POND
EASTOVER, SOUTH CAROLINA

TITLE:
SITE LOCATION MAP

DRAWN BY:	L. LILL	PROJ. NO.:	416559.0005.0000
CHECKED BY:	J. YONTS		**FIGURE 1**
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

LEGEND

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

NOTES:

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

1:3,000
1" = 250'
0 125 250 FEET

PROJECT:
DESC WATEREE STATION
FGD POND
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		**FIGURE 2**
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
- CCR ASD MONITORING WELL
- EVENT PIEZOMETER
- FGD POND BOUNDARY
- CLASS III LANDFILL

NOTES:

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

1:2,160
1" = 180'
0 90 180 FEET

PROJECT:
DESC WATEREE STATION
FGD POND
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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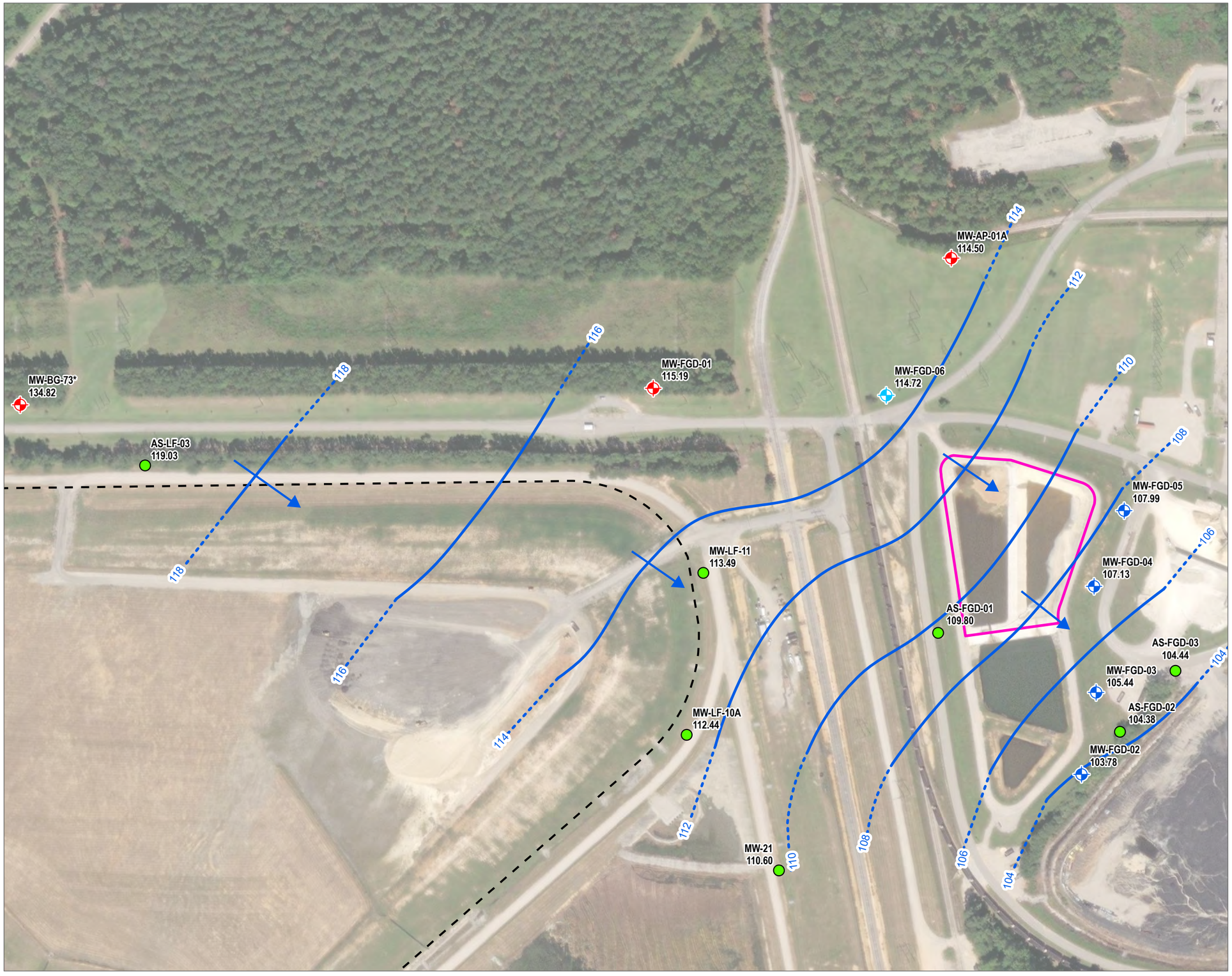

LEGEND

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

NOTES:

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

1:3,000
1" = 250'
0 125 250 FEET

PROJECT:
DESC WATEREE STATION
FGD POND
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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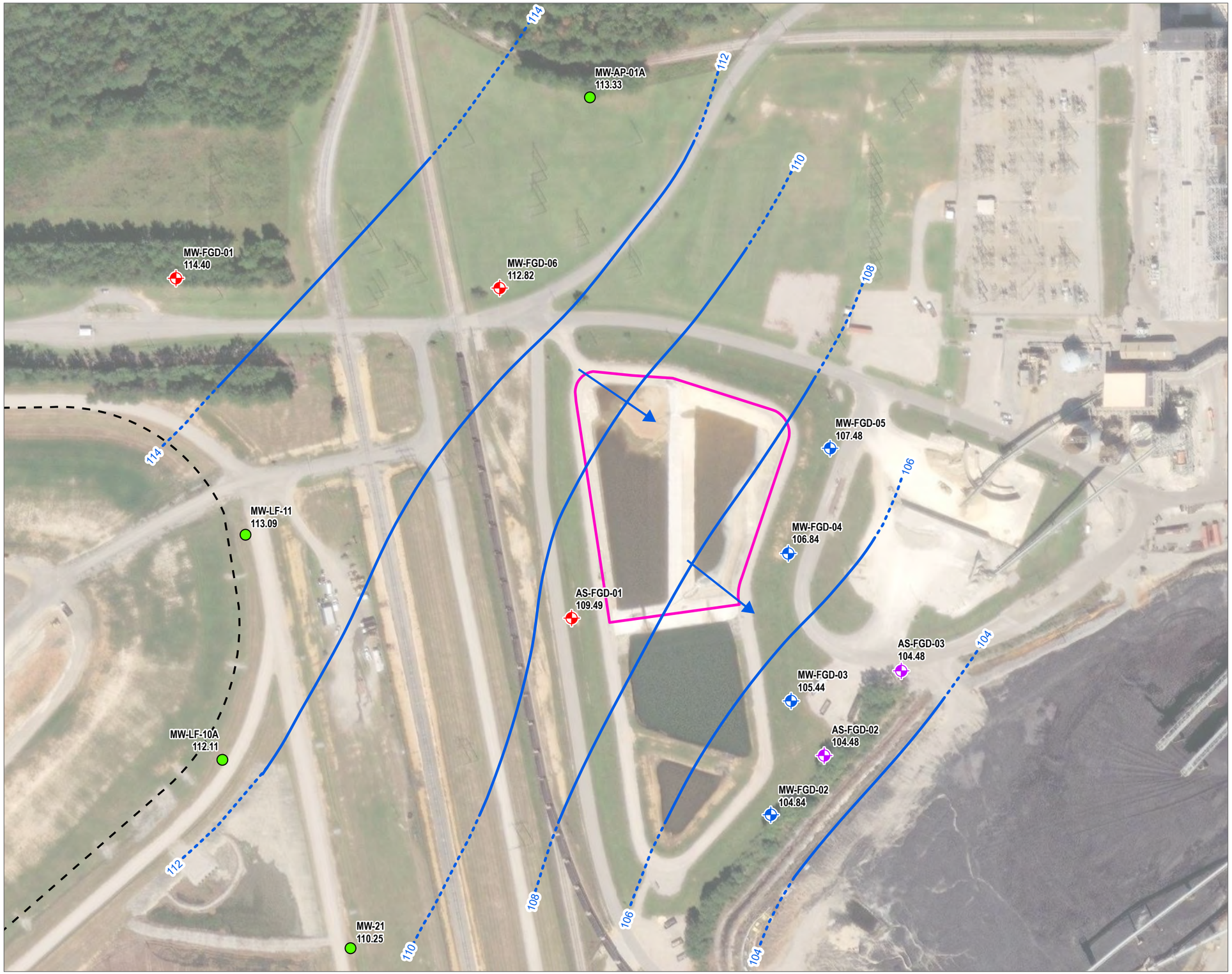


LEGEND

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

NOTES:

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

1:2,160
1" = 180'
0 90 180 FEET

PROJECT:	DESC WATEREE STATION FGD POND 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

Coordinate System: NAD 1983 StatePlane South Carolina FIPS 3900 Feet; Map Rotation: 0
Saved By: LLILL on 1/31/2024 - 09:58:23 AM; File Path: T:\PROJECTS\Dominion\South Carolina\5_Wateree_SC\2-APPX\2023_Figures\2023_Figures.aprx; Layout Name: Fig05_Wateree_CCR_FGDPond_WT_10102023

Appendix A
September 2022 Alternate Source Demonstration

DOMINION ENERGY SOUTH CAROLINA

WATEREE STATION FGD POND

RICHLAND COUNTY, SOUTH CAROLINA

EPA CCR RULE COMPLIANCE

ALTERNATE SOURCE DEMONSTRATION REPORT

Second Semiannual 2022 Detection Monitoring Event

March 23, 202**3**

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

Table of Contents

List of Figures

List of Tables

Executive Summary

Dominion Energy South Carolina (DESC) completed the second semiannual 2022 detection monitoring event (sampling event) in September 2022 for the Wateree Generating Station (Station) Flue Gas Desulfurization (FGD) Wastewater Pond (FGD Pond) (Unit). The sampling event was conducted 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 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:

- Calcium and sulfate (MW-FGD-02).
- Calcium and sulfate (MW-FGD-03).
- Calcium and sulfate (MW-FGD-04).
- Calcium, chloride, sulfate, and total dissolved solids (TDS) (MW-FGD-05).

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 identified SSIs are not due to a release from the Unit to groundwater, but are due to the following:

- 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 Unit.

Section 1
Introduction

1.1 Background

Dominion Energy South Carolina (DESC) operates a Flue Gas Desulfurization (FGD) Wastewater Pond (FDG Pond) (Unit) for the management of coal combustion residuals (CCR) at the Wateree Generating Station (Station). The Unit is located at 142 Wateree Station Road in Eastover, Richland County, South Carolina as shown on **Figure 1**. The Unit manages wastewater generated from the FGD scrubber system and includes two ponds (1.10 and 1.15-acres) which alternate operation based on the need for CCR removal. Both ponds discharge to a downstream pond used for volume control.

The Unit was constructed in accordance with construction permit (No. 19263-IW) issued from the South Carolina Department of Health and Environmental Control (SCDHEC) in December 2009 and placed into operation in accordance with an approval issued by SCDHEC in April 2010. Effluent discharge for the Unit is monitored and permitted under a National Pollutant Discharge System (NPDES) permit (Permit No. SC0002038) issued by SCDHEC.

The Unit incorporates a liner system comprised of and an 18-inch-thick low permeability compacted soil liner at the base overlain by a geosynthetic clay liner, high-density polyethylene (HDPE) geomembrane liner, fabric cushion, and protective cover (fabric formed concrete mat in forebays, soil cover in settling bays) at the surface (Garrett & Moore 2016). The forebays are maintained by periodic dewatering to remove particulate material and to inspect the concrete protective cover.

The Unit is considered an existing surface impoundment that contains 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

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). The location of the EPA CCR Rule Compliance Monitoring Well Network is presented on **Figure 2**. The

Certified Monitoring Well Network consists of 8 wells installed into the subsurface to monitor shallow groundwater as follows:

- Four wells were installed as background monitoring wells and include AS-FGD-01, MW-AP-01A, MW-BG-73, and MW-FGD-01.
- Four wells were installed as compliance monitoring wells and include MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05.
- Additionally, monitoring wells AS-FGD-02 and AS-FGD-03 were installed to support alternate source demonstration activities.

A groundwater sampling and analysis program 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 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 2022 semiannual 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 was statistically evaluated to identify potential statistically significant increases (SSIs) for Appendix III constituents above background levels. 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 10 SSIs were identified for four Appendix III constituents: calcium, chloride, sulfate, and total dissolved solids (TDS).

1.3 Purpose

Pursuant to 40 CFR §257.94(e)(2), DESC may demonstrate that a source other than the 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 3.57×10^{-3} centimeters per second (cm/s) to 1.51×10^{-2} cm/s with an estimated groundwater flow velocities of between 0.12 feet per day (ft/day) to 1.18 feet/day (Nautilus 2021a).

1.5 General Groundwater Quality

Regionally, groundwater quality within the Black Creek Aquifer may contain high fluoride values attributed to the presence of fluorapatite from abundant fossilized shark teeth in the formation (SCDHEC 2013). Groundwater 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
Calcium (µg/L)	8,000	200,000	None
Chloride (mg/L)	1	36	250 (Secondary)
pH (s.u)	4.8	7.2	6.5 – 8.5 (Secondary)
Sulfate (mg/L)	1	118	250 (Secondary)
TDS (mg/L)	20	500	500 (Secondary)

Note: mg/L = milligram per liter; s.u. = standard units

As noted in the table above, the natural range of groundwater quality within the Catawba-Wateree River Subbasin approaches the primary MCL established by the USEPA for drinking water with respect to TDS (SCDNR 2009). The natural chloride, sulfate, and pH range of groundwater quality within the Catawba-Wateree River Subbasin is generally less than the secondary drinking water MCL. A primary or secondary drinking water MCL has not been established for calcium, however, the natural range of calcium in the Catawba-Wateree River Subbasin is reported to be in the range of 8,000 µg/L to 200,000 µg/L (SCDNR 2009).

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 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:

- Calcium and sulfate (MW-FGD-02).
- Calcium and sulfate (MW-FGD-03).
- Calcium and sulfate (MW-FGD-04).
- Calcium, chloride, sulfate, and TDS (MW-FGD-05).

All other Appendix III constituent concentrations were within their background threshold values at 95% confidence levels using Thiel-Sen's trend and/or interwell prediction limits in all the CCR Rule groundwater 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 Calcium at MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05

The calcium SSIs identified at MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05 are the result of natural variation in groundwater quality from areas upgradient from the Unit. The following evidence supports this determination:

- Calcium was detected in MW-FGD-02 (2,300 µg/L), MW-FGD-03 (5,710 µg/L), MW-FGD-04 (2,170 µg/L), and MW-FGD-05 (10,600 µg/L) during the September 2022 sampling event. These concentrations exceed the background threshold value of 1,910 µg/L. Reported regional calcium concentrations for groundwater in the Station area range between 8,000 µg/L to 200,000 µg/L (SCDNR 2009). The detected calcium concentrations for MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05 fall within the range of natural variation in area groundwater quality.

2.2 Chloride at MW-FGD-05

The chloride SSI identified at MW-FGD-05 is the result of natural variation in groundwater quality from areas upgradient from the Unit. The following evidence supports this determination:

- Chloride was detected in MW-FGD-05 at a concentration of 13.4 mg/L during the September 2022 event. This concentration exceeds the background threshold value of 10.8 mg/L. 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 for MW-FGD-05 from September 2022 falls within the range of natural variation in area groundwater quality.

2.3 Sulfate at MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05

The sulfate SSIs identified at MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05 are the result of natural variation in groundwater quality from areas upgradient from the Unit. The following evidence supports this determination:

- Sulfate was detected in MW-FGD-02 (6.20 mg/L), MW-FGD-03 (8.43 mg/L), MW-FGD-04 (3.27 mg/L), and MW-FGD-05 (29.8 mg/L) during the September 2022 sampling event. These concentrations exceed the background threshold value of 0.83 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 concentrations for MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05 fall within the range of natural variation in area groundwater quality.

2.4 TDS at MW-FGD-05

The TDS SSI identified at MW-FGD-05 is the result of natural variation in groundwater quality from areas upgradient from the Unit. The following evidence supports this determination:

- TDS was detected in MW-FGD-05 at a concentration of 105 mg/L in the September 2022 sample. This concentration exceeds the background threshold value of 72.2 mg/L. Reported regional TDS concentrations for groundwater in the Station area range between 20 mg/L to 500 mg/L (SCDNR 2009). The detected TDS concentration of 105 mg/L from September 2022 falls within the range of natural variation in area groundwater quality.

2.5 Additional Support for ASD

Several constituents are good indicators of coal ash impacts, with lithium being one of them. Total lithium was analyzed during the September 2022 event (**Table 2**) and was detected at concentrations below 2.0 micrograms per liter (µg/L) to a maximum of 4.11 µg/L (laboratory estimated) observed in background well AS-FGD-01. Historically, lithium has been detected at concentrations below 2.0 µg/L to a maximum of 4.2 µg/L observed in downgradient well AS-FGD-02 in November 2017 (Nautilus 2021b). In contrast, a surface water sample representing the wastewater associated with the Unit was collected from FGD-Pond-Band analyzed for total lithium during the September 2022 event. FGD-Pond-B is

downgradient (south) of the Unit and the detected total lithium concentration from September 2022 was 251 µg/L. Historical total lithium concentrations from FGD-Pond-B have been between 71.1 µg/L to 345 µg/L (Nautilus 2021b). Naturally occurring concentrations of lithium in South Carolina groundwater generally exhibits a range of between less than 5 µg/L to approximately 60 µg/L (Lindsey et al., 2021). The historical levels of lithium detected are within the range of naturally occurring groundwater concentrations and one to two orders of magnitude less than what is detected from the Unit.

Another constituent which is a good indicator of coal ash impacts is boron. Total boron was analyzed during the September 2022 event (**Table 1**) and was detected at concentrations between 8.52 µg/L (laboratory estimated) to a maximum of 37.1 µg/L observed in downgradient well MW-FGD-02. In contrast, a surface water sample collected from FGD-Pond-B was analyzed for total boron during the September 2022 event and the detected concentration was 98,900 µg/L. Historical total boron concentrations from FGD-Pond-B have been between 30,800 µg/L to 193,500 µg/L (Nautilus 2021a). Naturally occurring concentrations of boron in South Carolina groundwater generally exhibits a range of between less than 5 µg/L to approximately 150 µg/L (Lindsey et al., 2021). The historical levels of boron detected are within the range of naturally occurring groundwater concentrations and two to three orders of magnitude less than what is detected from the Unit.

The general absence of lithium and boron above naturally occurring groundwater levels within the Unit's monitoring well network suggests that a release of wastewater from the Unit has not occurred.

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 2022 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 Unit.

Section 4
Certification

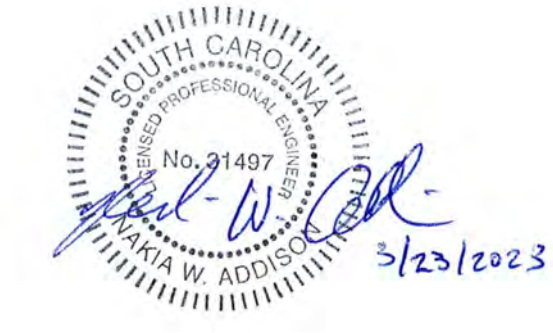
I hereby certify that the alternative source demonstration presented within this document for the DESC Wateree Station FGD Pond CCR Unit has been prepared to meet the requirements of Title 40 CFR §257.94(e)2 of the Federal CCR Rule. This document is accurate and has been prepared in accordance with good 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: March 23, 2023



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Section 5
References

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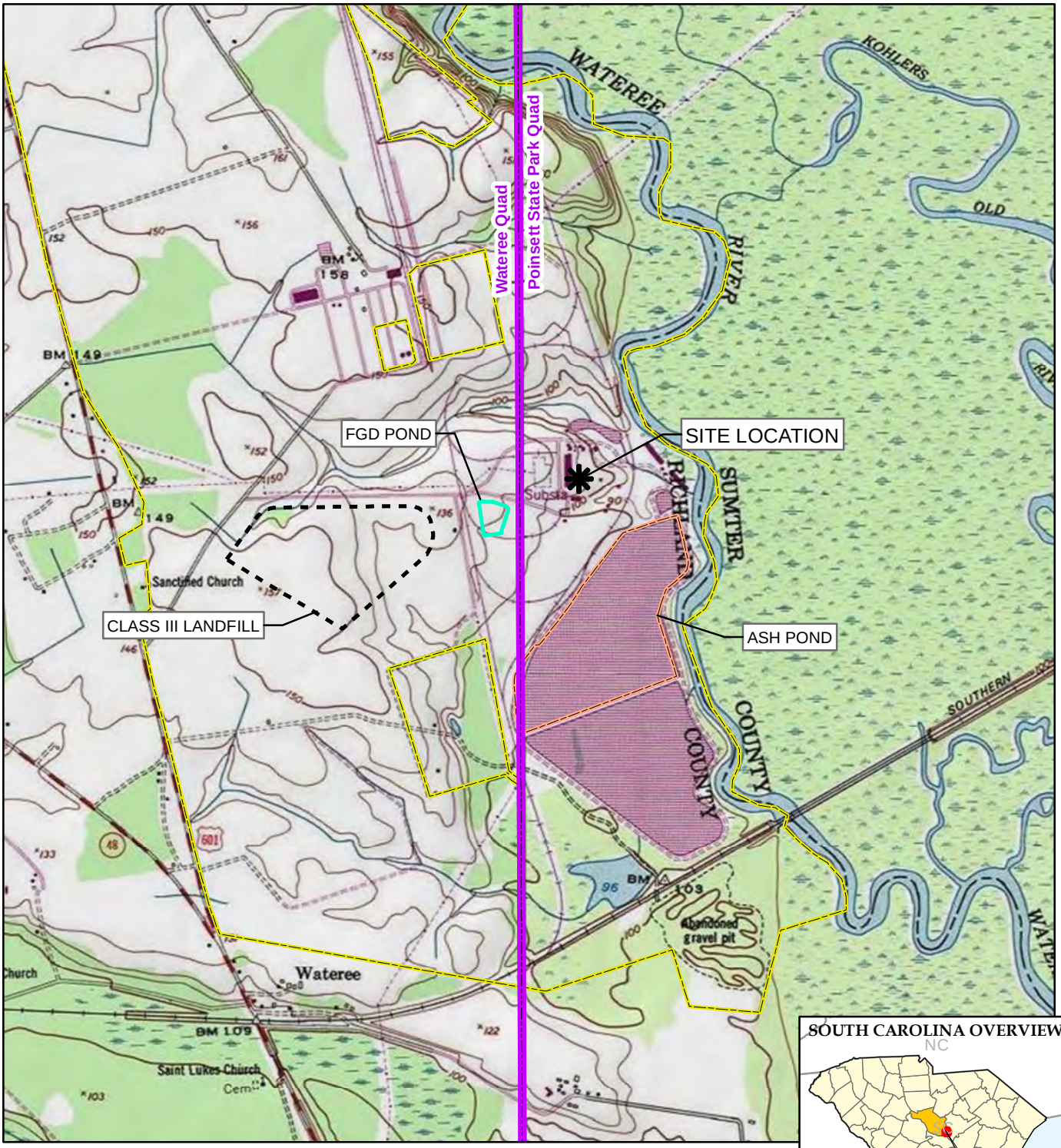
Figures

TRC - GIS



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

USGS 24k QUAD BOUNDARY
SITE LOCATION
FGD POND BOUNDARY
CLASS IiI LANDFILL
ASH 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_FGD_Loc_Map_CCR.mxd	
DATE:	JANUARY 2023

LEGEND

- CCR Background Monitoring Well
- CCR Downgradient Monitoring Well
- CCR ASD Monitoring Well
- Event Piezometer
- FGD Pond Boundary
- Class II Landfill

NOTE: Aerial Image from ESRI World Imagery dated September 2022.

N W E S

0 250 500 Feet

1 " = 250 '
1:3,000

PROJECT:
DESC WATEREE STATION
FGD POND
EASTOVER, SOUTH CAROLINA

TITLE:
CCR RULE COMPLIANCE
MONITORING WELL NETWORK

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

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

FILE NO.: Figure2_CCR_FGD_Well_Network.mxd

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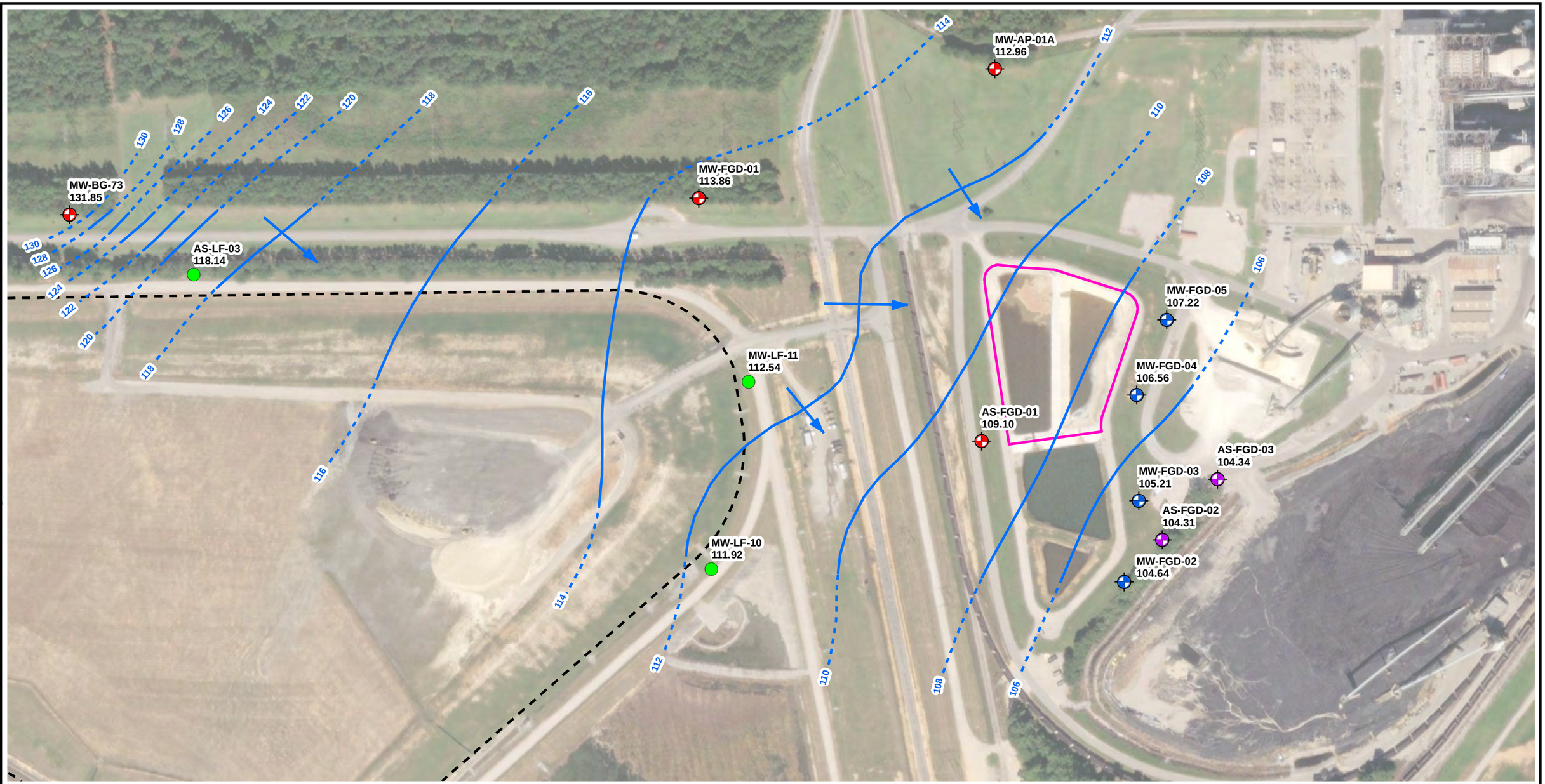
Coordinate System: NAD 1983 StatePlane South Carolina FIPS 3900 Feet (Foot US)
Map Rotation: 0



LEGEND

- CCR Background Monitoring Well
- CCR Downgradient Monitoring Well
- CCR ASD Monitoring Well
- Event Piezometer
- FGD Pond Boundary
- Class II Landfill
- Water Table Elevation in feet above mean sea level (2' Contour Intervals) - Dashed where inferred.
- Approximate Groundwater Flow Direction
- **111.92** Water Elevation (FT MSL)

NOTE: Aerial Image from ESRI World Imagery dated September 2022.

N W E S

0 250 500 Feet

1 " = 250 '
1:3,000

PROJECT:
DESC WATEREE STATION
FGD POND
EASTOVER, SOUTH CAROLINA

TITLE:
GROUNDWATER POTENTIOMETRIC SURFACE MAP - SEPTEMBER 6, 2022

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

TRC
50 International Drive, Suite 150
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FILE NO.: Figure3_CCR_WT_FGD_Pond_2022_Q3.mxd

TRC - GIS
Coordinate System: NAD 1983 StatePlane South Carolina FIPS 3900 Feet (Foot US)
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Tables

Table 1
Summary of Second Semiannual 2022 Detection Monitoring Program Sampling Event Data
Dominion Energy South Carolina - Wateree Station FGD Pond
Eastover, Richland County, South Carolina

			Background Wells																ASD Support Well							
		Sample ID:	AS-FGD-01				MW-AP-01A				MW-BG-73				MW-FGD-01				AS-FGD-02				AS-FGD-02 DUP			
		Sample Date:	09/07/2022				09/08/2022				09/09/2022				09/07/2022				09/07/2022				09/07/2022			
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**	**Result**	**Qual**	**MDL**	**QL**
CCR Appendix III																										
Boron	µg/L	58.5	**8.52**	J	4.00	15.0	**16.5**		4.00	15.0	**10.9**	J	5.20	15.0	**9.79**	J	4.00	15.0	**15.0**		4.00	15.0	**15.4**		4.00	15.0
Calcium	µg/L	1910	**994**		30.0	100	**489**		30.0	100	**280**		80.0	200	**904**		30.0	100	**1730**		30.0	100	**1770**		30.0	100
Chloride	mg/L	10.8	**7.32**		0.0670	0.200	**5.75**		0.0670	0.200	**2.52**		0.0670	0.200	**6.09**		0.0670	0.200	**8.17**		0.0670	0.200	**8.17**		0.0670	0.200
Fluoride	mg/L	0.1	**0.0739**	J	0.0330	0.100	0.0652	U	0.0652	0.100	0.0330	U	0.0330	0.100	**0.0418**	J	0.0330	0.100	**0.0754**	J	0.0330	0.100	**0.0741**	J	0.0330	0.100
pH	SU	3.44 - 5.43	4.44		0.01	0.01	4.19		0.01	0.01	4.13		0.1	0.1	4.30		0.01	0.01	4.39		0.01	0.01	4.39		0.01	0.01
Sulfate	mg/L	0.83	0.362	U	0.362	0.400	0.307	U	0.307	0.400	**0.398**	J	0.133	0.400	0.756	U	0.133	0.400	**4.57**		0.133	0.400	**4.41**		0.133	0.400
Total Dissolved Solids	mg/L	72.2	**28.0**		2.38	10.0	**8.00**		2.38	10.0	3.40	U	3.40	14.3	**8.00**	J	2.38	10.0	**30.0**		2.38	10.0	**26.0**		2.38	10.0
Field Parameters																										
Conductivity	µS/cm	--	56.29		0.1	0.1	41.49		0.1	0.1	25.09		0.1	0.1	43.90		0.1	0.1	68.60		0.1	0.1	68.60		0.1	0.1
Dissolved Oxygen	mg/L	--	4.96		0.01	0.01	2.03		0.01	0.01	5.50		0.01	0.01	4.46		0.01	0.01	3.59		0.01	0.01	3.59		0.01	0.01
Temperature	C	--	25.78		0.01	0.01	22.48		0.01	0.01	23.07		0.01	0.01	20.66		0.01	0.01	24.33		0.01	0.01	24.33		0.01	0.01
Turbidity	NTU	--	3.32		0.1	0.1	2.84		0.1	0.1	0.59		0.1	0.1	0.85		0.1	0.1	3.02		0.1	0.1	3.02		0.1	0.1
Depth to Water*	ft btoc	--	17.19		0.01	0.01	15.01		0.01	0.01	9.72		0.01	0.01	25.28		0.01	0.01	16.12		0.01	0.01	16.12		0.01	0.01
Groundwater Elevation*	ft msl	--	109.10		0.01	0.01	112.96		0.01	0.01	131.85		0.01	0.01	113.86		0.01	0.01	104.31		0.01	0.01	104.31		0.01	0.01
Oxidation Reduction Potential	millivolts	--	239.9		0.1	0.1	99.6		0.1	0.1	302.4		0.1	0.1	168.6		0.1	0.1	55.9		0.1	0.1	55.9		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
Summary of Second Semiannual 2022 Detection Monitoring Program Sampling Event Data
Dominion Energy South Carolina - Wateree Station FGD Pond
Eastover, Richland County, South Carolina

			ASD Support Well				Downgradient Wells													
		Sample ID:	AS-FGD-03				MW-FGD-02				MW-FGD-03				MW-FGD-04				MW-FGD-05			
		Sample Date:	09/07/2022				09/07/2022				09/07/2022				09/07/2022				09/07/2022			
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	58.5	**13.7**	J	4.00	15.0	**37.1**		4.00	15.0	**13.0**	J	4.00	15.0	**14.3**	J	4.00	15.0	**32.5**		4.00	15.0
Calcium	µg/L	1910	**1570**		30.0	100	**2300**		30.0	100	**5710**		30.0	100	**2170**		30.0	100	**10600**		30.0	100
Chloride	mg/L	10.8	**8.90**		0.0670	0.200	**7.04**		0.0670	0.200	**6.77**		0.0670	0.200	**8.27**		0.0670	0.200	**13.4**		0.335	1.00
Fluoride	mg/L	0.1	**0.0733**	J	0.0330	0.100	**0.0993**	J	0.0330	0.100	**0.0724**	J	0.0330	0.100	**0.0556**	J	0.0330	0.100	**0.0793**	J	0.0330	0.100
pH	SU	3.44 - 5.43	4.30		0.01	0.01	4.51		0.01	0.01	4.81		0.01	0.01	4.04		0.01	0.01	4.93		0.01	0.01
Sulfate	mg/L	0.83	**2.26**		0.133	0.400	**6.20**		0.133	0.400	**8.43**		0.133	0.400	**3.27**		0.133	0.400	**29.8**		0.665	2.00
Total Dissolved Solids	mg/L	72.2	**20.0**		2.38	10.0	**34.0**		2.38	10.0	**29.0**		2.38	10.0	**23.0**		2.38	10.0	**105**		2.38	10.0
Field Parameters																						
Conductivity	µS/cm	--	57.66		0.1	0.1	69.52		0.1	0.1	79.44		0.1	0.1	59.27		0.1	0.1	168.18		0.1	0.1
Dissolved Oxygen	mg/L	--	1.78		0.01	0.01	1.95		0.01	0.01	4.06		0.01	0.01	3.65		0.01	0.01	2.31		0.01	0.01
Temperature	C	--	27.30		0.01	0.01	23.99		0.01	0.01	25.90		0.01	0.01	25.68		0.01	0.01	27.11		0.01	0.01
Turbidity	NTU	--	1.89		0.1	0.1	1.99		0.1	0.1	10.64		0.1	0.1	0.86		0.1	0.1	2.56		0.1	0.1
Depth to Water*	ft btoc	--	15.07		0.01	0.01	16.60		0.01	0.01	18.08		0.01	0.01	16.23		0.01	0.01	16.13		0.01	0.01
Groundwater Elevation*	ft msl	--	104.34		0.01	0.01	104.64		0.01	0.01	105.21		0.01	0.01	106.56		0.01	0.01	107.22		0.01	0.01
Oxidation Reduction Potential	millivolts	--	60.6		0.1	0.1	55.9		0.1	0.1	137.6		0.1	0.1	158.7		0.1	0.1	530.1		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

NM = Not measured

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 2
Summary of Second Semiannual 2022 Alternate Source Demonstration Sampling Data
Dominion Energy South Carolina - Wateree Station FGD Pond
Eastover, Richland County, South Carolina

		Background Wells												ASD Support Well											
Sample ID:		AS-FGD-01				MW-BG-73				MW-FGD-01				AS-FGD-02				AS-FGD-02 DUP				AS-FGD-03			
Sample Date:		09/07/2022				09/09/2022				09/07/2022				09/07/2022				09/07/2022				09/07/2022			
Parameter Name	**Units**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**
ASD Support Parameters																									
Alkalinity, Total as CaCO3	mg/L	1.45	U	1.45	4.0	**1.60**	J	1.45	4.0	**2.40**	J	1.45	4.0	1.45	U	1.45	4.0	--		--	--	1.45	U	1.45	4.00
Lithium	ug/L	**4.11**	J	2.00	10.0	**2.07**	J	2.00	10.0	2.00	U	2.00	10.0	**3.72**	J	2.00	10.0	--		--	--	2.00	U	2.00	10.0
Magnesium	ug/L	**1210**		10.0	15.0	**495**		10.0	15.0	**990**		10.0	15.0	**1590**		10.0	15.0	--		--	--	**799**		10.0	15.0
Potassium	ug/L	**1490**		80.0	300	**827**		80.0	300	**1050**		80.0	300	**1530**		80.0	300	--		--	--	**1490**		80.0	300
Sodium	ug/L	**3840**		80.0	250	**1490**		80.0	250	**3030**		80.0	250	**4430**		80.0	250	--		--	--	**3740**		80.0	250

Notes:
MDL = Method Detection Limit
QL = Quantification Limit
mg/L = Milligram per liter
µg/L = Microgram per liter
-- = Not applicable.

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

Bold font = Detected constituent

Table 2
Summary of Second Semiannual 2022 Alternate Source Demonstration Sampling Data
Dominion Energy South Carolina - Wateree Station FGD Pond
Eastover, Richland County, South Carolina

		Downgradient Wells																							
Sample ID:		**MW-FGD-02**				**MW-FGD-03**				**MW-FGD-04**				**MW-FGD-04 DUP**				**MW-FGD-05**				**FGD-POND-B**			
Sample Date:		**09/07/2022**				**09/07/2022**				**09/07/2022**				**09/07/2022**				**09/07/2022**				**09/07/2022**			
Parameter Name	**Units**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**
ASD Support Parameters																									
Alkalinity, Total as CaCO3	mg/L	**2.60**	J	1.45	4.00	**8.00**	J	1.45	4.00	**1.80**	J	1.45	4.00	1.45	U	1.45	4.00	**16.8**	J	1.45	4.00	**41.8**	J	1.81	5.00
Lithium	ug/L	**2.80**	J	2.00	10.0	2.00	U	2.00	10.0	2.00	U	2.00	10.0	2.00	U	2.00	10.0	**2.71**	J	2.00	10.0	**251**		10.0	50.0
Magnesium	ug/L	**1410**		10.0	15.0	**1610**		10.0	15.0	**938**		10.0	15.0	**932**		10.0	15.0	**5480**		10.0	15.0	**1490000**		1000	1500
Potassium	ug/L	**2160**		80.0	300	**2200**		80.0	300	**1650**		80.0	300	**1640**		80.0	300	**2870**		80.0	300	**54500**		400	1500
Sodium	ug/L	**4870**		80.0	250	**4390**		80.0	250	**3230**		80.0	250	**3270**		80.0	250	**9320**		80.0	250	**206000**		400	1250

Notes:
MDL = Method Detection Limit
QL = Quantification Limit
mg/L = Milligram per liter
µg/L = Microgram per liter
-- = Not applicable.

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

Bold font = Detected constituent

Appendix B
March 2023 Alternate Source Demonstration

DOMINION ENERGY SOUTH CAROLINA

WATEREE STATION FGD POND

RICHLAND COUNTY, SOUTH CAROLINA

USEPA CCR RULE COMPLIANCE

ALTERNATE SOURCE DEMONSTRATION REPORT

First Semiannual 2023 Detection Monitoring Event

September 22, 2023

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Table of Contents

List of Figures

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) Flue Gas Desulfurization (FGD) Wastewater Pond (FGD Pond) (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 background concentrations based on direct comparisons made between the statistically derived background threshold value (95 percent upper prediction limit) and the downgradient monitoring results:

- Calcium (MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05).
- Chloride (MW-FGD-04 and MW-FGD-05).
- pH (MW-FGD-05).
- Sulfate (MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05).
- Total dissolved solids (MW-FGD-05).

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 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 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 8 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 a Flue Gas Desulfurization (FGD) Wastewater Pond (FDG Pond) (Unit) for the management of coal combustion residuals (CCR) at the Wateree Generating Station (Station). The Unit is located at 142 Wateree Station Road in Eastover, Richland County, South Carolina as shown on **Figure 1**. The Unit manages wastewater generated from the FGD scrubber system and includes two ponds (1.10 and 1.15-acres) which alternate operation based on the need for CCR removal. Both ponds discharge to a downstream pond used for volume control.

The Unit was constructed in accordance with construction permit (No. 19263-IW) issued from the South Carolina Department of Health and Environmental Control (SCDHEC) in December 2009 and placed into operation in accordance with an approval issued by SCDHEC in April 2010. Effluent discharge for the Unit is monitored and permitted under a National Pollutant Discharge System (NPDES) permit (Permit No. SC0002038) issued by SCDHEC.

The Unit incorporates a liner system comprised of and an 18-inch-thick low permeability compacted soil liner at the base overlain by a geosynthetic clay liner, high-density polyethylene (HDPE) geomembrane liner, fabric cushion, and protective cover (fabric formed concrete mat in forebays, soil cover in settling bays) at the surface (Garrett & Moore 2016). The forebays are maintained by periodic dewatering to remove particulate material and to inspect the concrete protective cover.

The Unit is considered an existing surface impoundment that contains 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 seven wells installed into the subsurface to monitor shallow groundwater as follows:

- Three upgradient/background monitoring wells: MW-AP-01A, MW-BG-73, and MW-FGD-01.
- Four downgradient monitoring wells: MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05.

- Three wells to support alternate source demonstration activities: AS-FGD-01, AS-FGD-02, and AS-FGD-03.

The first semiannual 2023 detection monitoring event was conducted March 13-14, 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) 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 12 SSIs were identified for five Appendix III constituents: calcium, chloride, pH, sulfate, and total dissolved solids (TDS).

1.3 Purpose

Pursuant to 40 CFR §257.94(e)(2), DESC may demonstrate that a source other than the Unit caused the SSI identified or that the SSI 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 alternate source demonstration (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 0.12 feet per day (ft/day) to 1.18 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 13-14, 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:

- Calcium (MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05).
- Chloride (MW-FGD-04 and MW-FGD-05).
- pH (MW-FGD-05).
- Sulfate (MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05).
- TDS (MW-FGD-05).

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 Calcium at MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05

The calcium SSIs identified at MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05 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:

- Calcium was detected in MW-FGD-02 (8,390 µg/L), MW-FGD-03 (7,020 µg/L), MW-FGD-04 (4,890 µg/L), and MW-FGD-05 (25,500 µg/L) during the March 2023 sampling event. These concentrations exceed the background threshold value of 1,541 µg/L. Background monitoring wells MW-AP-01A and MW-BG-73, however, do 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-AP-01A located north of the Unit and MW-BG-73 located west of the Unit. Although both wells appear to monitor groundwater quality data from locations not affected by potential leakage from the Unit, they are however, not located hydraulically upgradient of the Unit, and therefore do not represent background groundwater quality.

2.2 Chloride at MW-FGD-04 and MW-FGD-05

The chloride SSIs identified at MW-FGD-04 and MW-FGD-05 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 in MW-FGD-04 (20.2 mg/L) and MW-FGD-05 (10.6 mg/L) during the March 2023 event. This concentration exceeds the background threshold value of 10.3 mg/L. Background monitoring wells MW-AP-01A and MW-BG-73, however, do 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-AP-01A located north of the Unit and MW-BG-73 located west of the Unit. Although both wells appear to monitor groundwater quality data from locations not affected by potential leakage from the Unit, they are however, not located hydraulically upgradient of the Unit, and therefore do not represent background groundwater quality.

2.3 pH at MW-FGD-05

The pH SSI identified at MW-FGD-05 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:

- pH was detected in MW-FGD-05 at a level of 5.60 standard units in the March 2023 sample. This concentration exceeds the background threshold range of 3.65 to 5.27 standard units. Background monitoring wells MW-AP-01A and MW-BG-73, however, do 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-AP-01A located north of the Unit and MW-BG-73 located west of the Unit. Although both wells appear to monitor groundwater quality data from locations not affected by potential leakage from the Unit, they are however, not located hydraulically upgradient of the Unit, and therefore do not represent background groundwater quality.

2.4 Sulfate at MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05

The sulfate SSIs identified at MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05 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:

- Sulfate was detected in MW-FGD-02 (8.59 mg/L), MW-FGD-03 (25.8 mg/L), MW-FGD-04 (5.24 mg/L), and MW-FGD-05 (22.1 mg/L) during the March 2023 sampling event. These concentrations exceed the background threshold value of 0.883 mg/L. Background monitoring wells MW-AP-01A and MW-BG-73, however, do 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-AP-01A located north of the Unit and MW-BG-73 located west of the Unit. Although both wells appear to monitor groundwater quality data from locations not affected by potential leakage from the Unit, they are however, not located hydraulically upgradient of the Unit, and therefore do not represent background groundwater quality.

2.5 TDS at MW-FGD-05

The TDS SSI identified at MW-FGD-05 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:

- TDS was detected in MW-FGD-05 at a concentration of 105 mg/L in the March 2023 sample. This concentration exceeds the background threshold value of 68.6 mg/L. Background monitoring wells MW-AP-01A and MW-BG-73, however, do 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-AP-01A located north of the Unit and MW-BG-73 located west of the Unit. Although both wells appear to monitor groundwater quality data from locations not affected by potential leakage from the Unit, they are however, not located hydraulically upgradient of the Unit, and therefore do not represent background groundwater quality.

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 well MW-BG-73 is located northwest of the Unit and contains a well screen entirely within what appears to be perched water sitting on top of a dense clay unit. The suspected perched water at 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 of this suspected 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 Class III landfill. Either way, the water in this well does not accurately represent the quality of groundwater passing the waste boundary upgradient of the Unit. To evaluate this possibility, monitoring well MW-FGD-06 was installed in December 2022, upgradient from the northwest corner of the Unit to monitor groundwater quality in this area. The location of the new monitoring well is depicted on **Figure 2** and groundwater flow beneath the Unit is depicted on **Figure 3**.

Background well MW-AP-01A is located north of the Unit and provides groundwater quality data from a location not affected by potential leakage from the Unit. This well, however, is not located hydraulically upgradient of the Unit and therefore, TRC is evaluating the option of removing the well from the background monitoring well network for the Unit.

The location and screened intervals of background wells AS-FGD-01 and MW-FGD-01 are within the uppermost aquifer and seem appropriate to yield groundwater samples representative of background groundwater quality entering the Unit.

3.2 Evaluation of Downgradient Monitoring Wells

Downgradient wells MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05 are located along the eastern boundary of the FGD Pond and do intercept groundwater flowing from beneath the Unit. The spacing of the wells seems appropriate for the Unit and therefore no changes to the downgradient monitoring well network are anticipated.

The new upgradient monitoring well has been sampled 8 times (January 2023 to August 2023) for background data collection in accordance with the CCR Rule in the circumstance that this monitoring well 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 – AS-FGD-01, MW-FGD-01, and MW-FGD-06.
  - Remove existing CCR network wells MW-BG-73 and MW-AP-01A as they do not appear to provide representative background groundwater quality per CCR Rule §257.9(a)(1)(ii).
- Downgradient monitoring wells - MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05.

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 January 2023 and is anticipated to conclude in October 2023. The review will include the evaluation of monthly groundwater level measurements and 8 independent sampling events for background parameter evaluation of the proposed monitoring well network.

Section 5
Certification

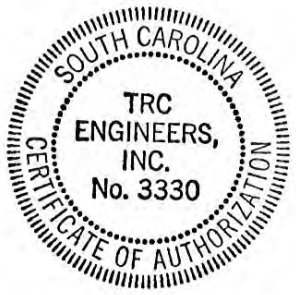
I hereby certify that the alternative source demonstration presented within this document for the DESC Wateree Station FGD Pond Unit has been prepared to meet the requirements of Title 40 CFR §257.94(e)(2) of the Federal CCR Rule. This document is accurate and has been prepared in accordance with good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

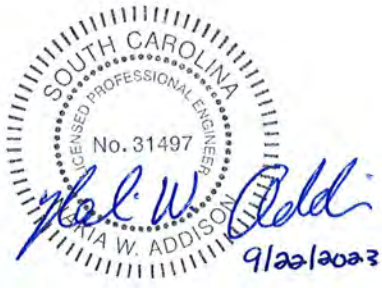
Name: Nakia W. Addison, P.E.

Expiration Date: June 30, 2024

Company: TRC Engineers, Inc.

Date: September 22, 2023





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Section 6
References

Garrett and Moore 2016. Closure Plan for the Wateree Station FGD Pond. Richland County, South Carolina. September 2016.

Garrett and Moore 2017. Groundwater Monitoring System Certification, Wateree Station Landfill, FGD Pond, Ash Pond. Richland County, South Carolina. October 2017.

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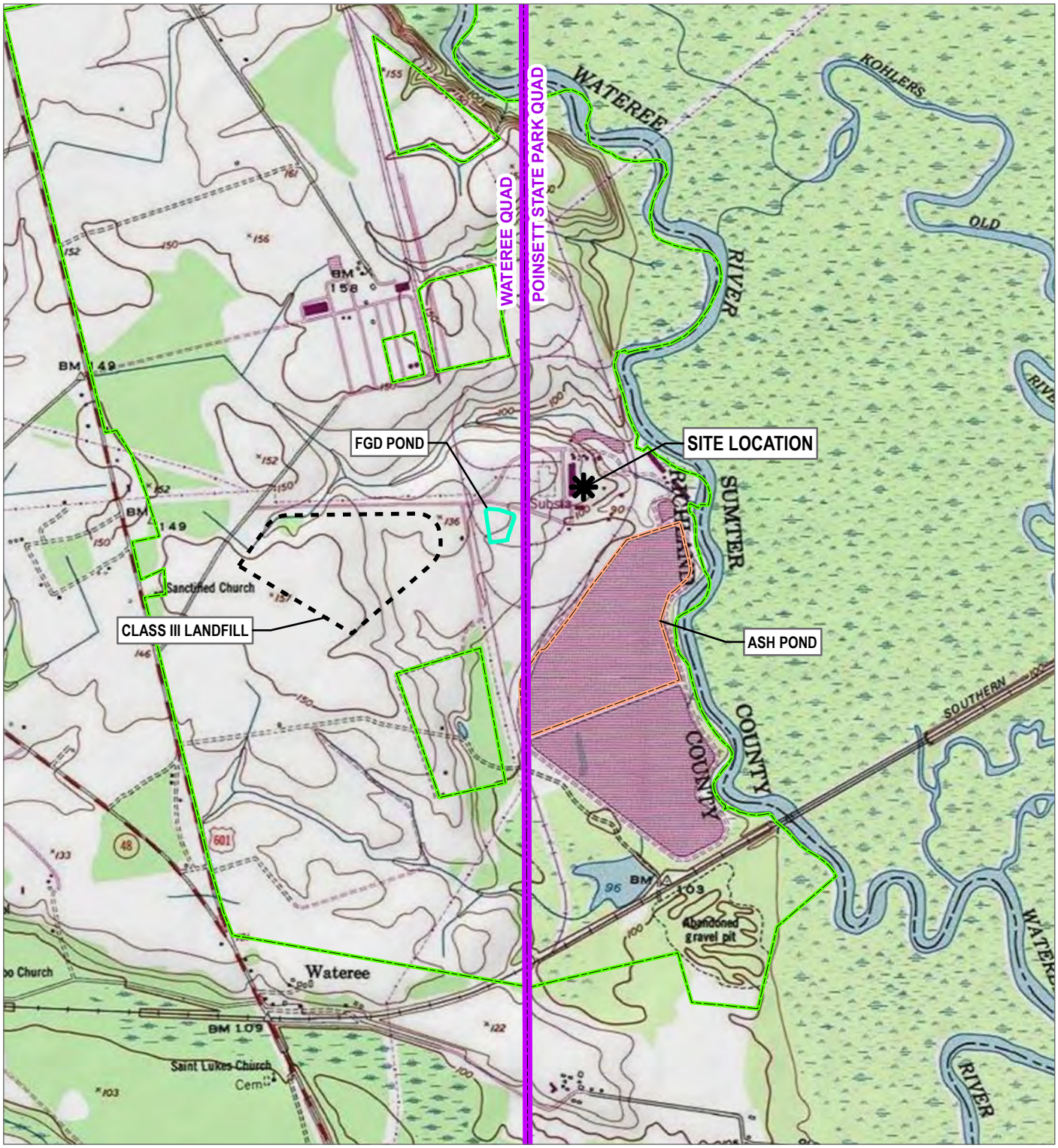
O'Brien & Gere, (OBG). 2017. Statistical Analysis Plan, SCE&G Wateree Station FGD Pond. Eastover, South Carolina: O'Brien & Gere Engineers, Inc.

South Carolina Electric & Gas (SCE&G). 2017. Groundwater Monitoring Data Statistical Analysis Plan Certification, SCE&G Wateree Station FGD Pond. Eastover, South Carolina.

Figures



LEGEND

- SITE LOCATION
- USGS 24K QUAD BOUNDARY
- FGD POND BOUNDARY
- CLASS III LANDFILL
- ASH 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
FGD POND
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
- CCR ASD MONITORING WELL
- EVENT PIEZOMETER
- FGD POND BOUNDARY
- CLASS III LANDFILL BOUNDARY

NOTES:

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

1:3,000
1" = 250'
0 125 250 FEET

PROJECT:
DESC WATEREE STATION
FGD POND
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
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FILE: 2023_Figures.aprx

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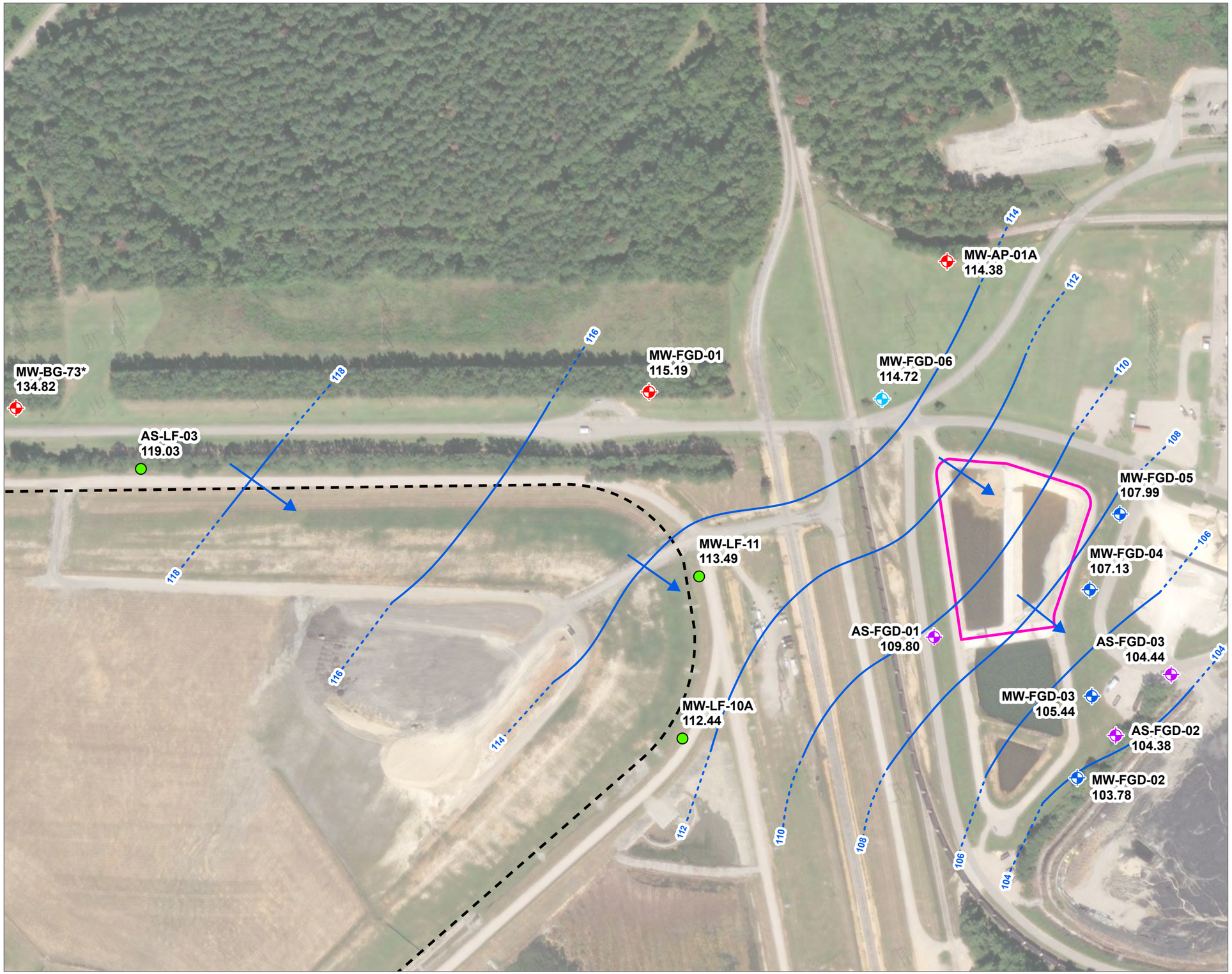

LEGEND

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

NOTES:

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

1:3,000
1" = 250'
0 125 250 FEET

PROJECT: DESC WATEREE STATION
FGD POND
EASTOVER, SOUTH CAROLINA

TITLE: GROUNDWATER POTENTIOMETRIC SURFACE 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
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PATEWOOD PLAZA THREE, SUITE 150
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FILE: 2023_Figures.aprx

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

Table 1
Summary of First Semiannual 2023 Detection Monitoring Program Sampling Event Data
Dominion Energy South Carolina - Wateree Station FGD Pond
Eastover, Richland County, South Carolina

			Background Wells											
		Sample ID:	MW-AP-01A				MW-BG-73				MW-FGD-01			
		Sample Date:	03/14/2023				03/15/2023				03/13/2023			
Parameter Name	**Units**	**Background Threshold Values**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**
CCR Appendix III														
Boron	µg/L	58.5	13.5	U	13.5	15.0	**6.60**	J	4.00	15.0	**7.56**	J	4.00	15.0
Calcium	µg/L	1,541	**695**		30.0	100	**302**		30.0	100	**1,500**		30.0	100
Chloride	mg/L	10.3	**5.72**		0.0670	0.200	2.40	U	2.40	2.40	**9.45**		0.134	0.400
Fluoride	mg/L	0.1	0.0330	U	0.0330	0.100	0.0330	U	0.0330	0.100	**0.0672**	J	0.0330	0.100
pH	SU	3.65 - 5.27	4.91		0.01	0.01	4.65		0.1	0.1	4.42		0.01	0.01
Sulfate	mg/L	0.883	**0.500**		0.133	0.400	**0.265**	J	0.133	0.400	**0.962**		0.133	0.400
Total Dissolved Solids	mg/L	68.6	**6.00**	J	2.38	10.0	2.38	U	2.38	10.0	**14.0**		2.38	10.0
Field Parameters														
Conductivity	µS/cm	--	42.17		0.1	0.1	22.99		0.1	0.1	68.53		0.1	0.1
Dissolved Oxygen	mg/L	--	1.76		0.01	0.01	6.17		0.01	0.01	4.08		0.01	0.01
Temperature	C	--	18.40		0.01	0.01	18.44		0.01	0.01	16.31		0.01	0.01
Turbidity	NTU	--	2.06		0.1	0.1	11.53		0.1	0.1	1.25		0.1	0.1
Oxidation Reduction Potential	millivolts	--	179.9		0.1	0.1	163.3		0.1	0.1	105.6		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

Table 1
Summary of First Semiannual 2023 Detection Monitoring Program Sampling Event Data
Dominion Energy South Carolina - Wateree Station FGD Pond
Eastover, Richland County, South Carolina

			Downgradient Wells															
		Sample ID:	MW-FGD-02				MW-FGD-03				MW-FGD-04				MW-FGD-05			
		Sample Date:	03/13/2023				03/14/2023				03/14/2023				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	58.5	**24.8**	J	20.0	75.0	**11.3**	J	4.00	15.0	20.0	U	20.0	75.0	**31.4**		4.00	15.0
Calcium	µg/L	1,541	**8,390**		150	500	**7,020**		30.0	100	**4,890**		150	500	**25,500**		30.0	100
Chloride	mg/L	10.3	**7.36**		0.0670	0.200	**6.59**		0.0670	0.200	**20.2**		0.335	1.00	**10.6**		0.335	1.00
Fluoride	mg/L	0.1	0.0330	U	0.0330	0.100	**0.0905**	J	0.0330	0.100	**0.0876**	J	0.0330	0.100	**0.0712**	J	0.0330	0.100
pH	SU	3.65 - 5.27	5.26		0.01	0.01	5.13		0.01	0.01	4.31		0.01	0.01	5.60		0.01	0.01
Sulfate	mg/L	0.883	**8.59**		0.133	0.400	**25.8**		0.266	0.800	**5.24**		0.133	0.400	**22.1**		0.665	2.00
Total Dissolved Solids	mg/L	68.6	**36.0**		2.38	10.0	**39.0**		2.38	10.0	**46.0**		2.38	10.0	**105**		2.38	10.0
Field Parameters																		
Conductivity	µS/cm	--	89.80		0.1	0.1	128.29		0.1	0.1	110.14		0.1	0.1	209.62		0.1	0.1
Dissolved Oxygen	mg/L	--	2.28		0.01	0.01	4.13		0.01	0.01	1.81		0.01	0.01	1.44		0.01	0.01
Temperature	C	--	18.20		0.01	0.01	17.34		0.01	0.01	16.59		0.01	0.01	13.40		0.01	0.01
Turbidity	NTU	--	1.15		0.1	0.1	3.29		0.1	0.1	1.77		0.1	0.1	4.49		0.1	0.1
Oxidation Reduction Potential	millivolts	--	123.0		0.1	0.1	111.9		0.1	0.1	96.3		0.1	0.1	562.0		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

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-FGD-01	2" PVC	1030	16.49	25.94	
WAT-AS-FGD-02	2" PVC	1034	16.05	25.54	
WAT-AS-FGD-03	2" PVC	1029	14.97	26.45	
WAT-MW-01A	2" PVC	1026	13.47	23.81	MW-AP-01A
WAT-MW-BG-73	2" PVC	1124	6.75	23.41	
WAT-AS-LF-03	2" PVC	0838	27.12	38.25	
WAT-MW-FGD-01	2" PVC	1119	23.95	31.60	
WAT-MW-FGD-02	2" PVC	1038	17.46	21.25	
WAT-MW-FGD-03	2" PVC	1038	17.85	20.83	
WAT-MW-FGD-04	2" PVC	1042	15.66	21.39	
WAT-MW-FGD-05	2" PVC	1042	15.36	19.25	
MW-FGD-06	2" PVC	1024	15.00	28.22	
WAT-MW-LF-10A	2" PVC	0940	20.05	28.73	
WAT-MW-LF-11	2" PVC	0944	21.77	30.41	
WAT-MW-22	2" PVC	0952	17.60	30.06	

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 FGD-CCR	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0005.0000.4.2	BY: RPC	DATE: 03/13	BY: JAH	DATE: 3/21/23

SAMPLE ID: MW-FGD-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: 1435	DATE: 03/13

PURGE METHOD: ☑ PUMP PERISTALTIC PUMP ☐ BAILER

DEPTH TO WATER: 24.05 T/ PVC

DEPTH TO BOTTOM: 30.10 T/ PVC

WELL VOLUME: 1.00 ☐ LITERS ☑ GALLONS

VOLUME REMOVED: 0.6 ☐ LITERS ☑ GALLONS

COLOR: clear ODOR: None

TURBIDITY

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

SAMPLE	TIME: 1500	DATE: 03/13

PH: 4.42 SU CONDUCTIVITY: 68.53 umhos/cm

ORP: 105.6 mV DO: 4.08 mg/L

TURBIDITY: 1.25 NTU

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 16.31 °C OTHER: —

COLOR: clear ODOR: None

FILTRATE (0.45 um) ☐ YES ☒ NO

FILTRATE COLOR: — FILTRATE ODOR: —

QC SAMPLE: ☐ MS/MSD ☐ DUP- _____

POST TURBIDITY: 0.61 NTU TIME: 1644

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)
1440	120	4.43	74.65	81.6	4.93	4.51	14.99	24.06	INITIAL
1445	120	4.42	71.13	90.7	4.45	3.36	15.96	24.06	↓
1450	120	4.42	70.30	97.3	4.11	2.07	16.29	24.06	↓
1455	120	4.42	69.08	102.3	4.01	1.70	16.39	24.06	↓
1500	120	4.42	68.53	105.6	4.08	1.25	16.31	24.06	0.6

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
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:

REVISED 06/2011

TRC

WATER SAMPLE LOG

PROJECT NAME:	Wateree Station FGD-CCR	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0005.0000.4.2	BY: JMB	DATE: 3-13-23	BY: JAH	DATE: 3/21/23

SAMPLE ID: MW-FGD-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: 1628	DATE: 3-13-23	SAMPLE	TIME: 1700	DATE: 3-13-23

PURGE METHOD: ☑ PUMP PERISTALTIC PUMP ☐ BAILER

DEPTH TO WATER: 16.45 T/ PVC

DEPTH TO BOTTOM: 21.21 T/ PVC

WELL VOLUME: 0.78 ☐ LITERS ☑ GALLONS

VOLUME REMOVED: 0.7 ☐ LITERS ☑ GALLONS

COLOR: clear ODOR: none

TURBIDITY ☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

PH: 5.26 SU CONDUCTIVITY: 89.80 umhos/cm

ORP: 123.0 mV DO: 2.28 mg/L

TURBIDITY: 1.15 NTU

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 18.20 °C OTHER:

COLOR: clear ODOR: none

FILTRATE (0.45 um) ☐ YES ☒ NO

FILTRATE COLOR: FILTRATE ODOR:

QC SAMPLE: ☐ MS/MSD ☐ DUP-

POST TURBIDITY: 1.02 NTU TIME: 1708

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)
1629	120	5.20	85.75	128.6	4.56	2.14	16.10	16.50	INITIAL
1645	|	5.27	87.03	123.6	2.42	2.02	18.00	16.50	|
1650	|	5.27	88.90	122.4	2.36	1.93	18.24	16.50	|
1655	|	5.27	88.60	121.9	2.29	1.80	18.21	16.50	|
1700	|	5.26	89.80	123.0	2.28	1.15	18.20	16.50	0.7

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:

TRC WATER SAMPLE LOG

PROJECT NAME:	Wateree Station FGD-CCR	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0005.0000.4.2	BY: RPC	DATE: 03/14	BY: JAY	DATE: 3/21/23

SAMPLE ID: ~~AS-FGD-03~~ RC MW-FGD-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: 0948	DATE: 03/14	SAMPLE	TIME: 1052	DATE: 03/14

PURGE METHOD: ☑ PUMP PERISTALTIC PUMP ☐ BAILER

DEPTH TO WATER: 17.86 T/ PVC

DEPTH TO BOTTOM: ~~20.36~~ T/ PVC 20.93

WELL VOLUME: 0.9 ☐ LITERS ☑ GALLONS

VOLUME REMOVED: 1.0 ☐ LITERS ☑ GALLONS

COLOR: Cloudy ODOR: None

TURBIDITY ☐ NONE ☒ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

PH: 5.13 SU CONDUCTIVITY: 128.29 umhos/cm

ORP: 111.9 mV DO: 4.13 mg/L

TURBIDITY: 3.29 NTU

☐ NONE ☒ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 17.34 °C OTHER: —

COLOR: clear ODOR: —

FILTRATE (0.45 um) ☐ YES ☒ NO

FILTRATE COLOR: — FILTRATE ODOR: —

QC SAMPLE: ☐ MS/MSD ☐ DUP-

POST TURBIDITY: 2.04 NTU TIME: 1108

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)
0953	100	4.86	216.96	132.1	5.44	>1000	15.31	18.05	INITIAL
RC 0958/1008	90	4.93	247.01	116.9	4.86	49.70	16.32	18.35	
1013	90	4.96	233.76	115.7	4.71	42.50	16.16	18.40	
1018	90	4.99	213.24	114.3	4.48	28.10	16.68	18.45	
1023	90	5.03	189.46	113.2	4.36	21.90	16.86	18.47	
1028	90	5.04	168.31	112.5	4.26	12.90	17.19	18.52	
1033	90	5.07	158.75	112.4	4.14	11.52	17.01	18.56	
1038	90	5.08	150.36	112.4	4.09	5.99	17.30	18.60	
1043	90	5.09	137.63	112.4	4.13	5.35	17.40	18.63	
1046	90	5.10	135.70	112.5	4.10	4.56	17.51	18.64	

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

(CONTINUED FROM PREVIOUS PAGE)

PROJECT NAME:	Wateree Station FGD-CCR	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0005.0000.4.2	BY: BM / AM	DATE: 03/14	BY: JAY	DATE: 3/21/23

SAMPLE ID: MW-FGD-03

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)
1049	90	5.12	131.80	112.3	4.08	4.33	17.21	18.67	1
1052	90	5.13	128.29	111.9	4.13	3.29	17.34	19.00	1.0

SIGNATURE: 03

DATE SIGNED: 03/14/23

TRC

WATER SAMPLE LOG

PROJECT NAME:	Wateree Station FGD-CCR	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0005.0000.4.2	BY: JNB	DATE: 3-14-23	BY: JAH	DATE: 3/21/23

SAMPLE ID: MW-FGD-04 | 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: 3-14-23	SAMPLE	TIME: 1029	DATE: 3-14-23

PURGE METHOD: ☑ PUMP PERISTALTIC PUMP ☐ BAILER

DEPTH TO WATER: 15.73 T/ PVC

DEPTH TO BOTTOM: 21.35 T/ PVC

WELL VOLUME: 0.93 ☐ LITERS ☑ GALLONS

VOLUME REMOVED: 1.4 ☐ LITERS ☑ GALLONS

COLOR: cloudy ODOR: none

TURBIDITY ☐ NONE ☒ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

PH: 4.31 SU CONDUCTIVITY: 110.14 umhos/cm

ORP: 96.3 mV DO: 1.81 mg/L

TURBIDITY: 1.77 NTU

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 16.59 °C OTHER:

COLOR: clear ODOR: none

FILTRATE (0.45 um) ☐ YES ☒ NO

FILTRATE COLOR: FILTRATE ODOR:

QC SAMPLE: ☐ MS/MSD ☐ DUP-

POST TURBIDITY: 1.71 NTU TIME: 1035

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)
0948	200	4.25	91.69	81.0	2.39	12.28	14.38	15.80	INITIAL
1005		4.29	97.14	86.5	1.90	7.29	16.35	15.80	
1010		4.30	97.35	89.4	1.88	5.44	16.45	15.80	
1015		4.29	99.40	~~100.60~~ * 92.1	1.85	4.89	16.26	15.80	
1020		4.30	98.91	93.8	1.92	3.90	16.50	15.80	
1023		4.29	110.23	95.4	1.67	2.70	16.49	15.80	
1026		4.29	109.21	95.7	1.80	2.05	16.53	15.80	
1029		4.31	110.14	96.3	1.81	1.77	16.59	15.80	1.4

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 FGD-CCR	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0005.0000.4.2	BY: CS	DATE: 3/14/23	BY: JAY	DATE: 3/21/23

SAMPLE ID: MW-FGD-05 | 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: 3/14/23	SAMPLE	TIME: 1025	DATE: 3/14/23

PURGE METHOD: ☑ PUMP PERISTALTIC PUMP ☐ BAILER

DEPTH TO WATER: 15.50 T/ PVC

DEPTH TO BOTTOM: 19.20 T/ PVC

WELL VOLUME: 0.6 ☐ LITERS ☑ GALLONS

VOLUME REMOVED: ~1 gal ☐ LITERS ☑ GALLONS

COLOR: clear ODOR: N/A

TURBIDITY: ☐ NONE ☒ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

PH: 5.60 SU CONDUCTIVITY: 209.62 umhos/cm

ORP: 562.0 mV DO: 1.44 mg/L

TURBIDITY: 4.49 NTU

☐ NONE ☒ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 13.40 °C OTHER:

COLOR: clear ODOR: N/A

FILTRATE (0.45 um) ☐ YES ☒ NO

FILTRATE COLOR: FILTRATE ODOR:

QC SAMPLE: ☒ MS/MSD ☐ DUP-

POST TURBIDITY: 4.22 NTU TIME: 1035

COMMENTS: FBLK-WAT-CCR-FGD-231021 collected @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)
0950	120	5.53	224.3	317.5	1.72	20.22	14.34	15.59	INITIAL
0955	100	5.52	207.48	328.2	1.72	14.53	14.34	15.69	
1000		5.58	210.78	483.6	1.68	7.12	13.76	15.74	
1005		5.60	211.16	548.8	1.53	6.27	13.48	15.77	
1010		5.59	211.22	558.8	1.48	4.95	13.44	15.81	
1015		5.59	213.56	559.3	1.45	4.10	13.22	15.83	
1020		5.60	209.62	562.0	1.44	4.49	13.40	15.85	~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
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 FGD-CCR	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0005.0000.4.2	BY: JMB	DATE: 3-13-23	BY: JAH	DATE: 3/21/23

SAMPLE ID: AS-FGD-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: 1340	DATE: 3-13-23	SAMPLE	TIME: 1420	DATE: 3-13-23

PURGE METHOD: ☑ PUMP PERISTALTIC PUMP ☐ BAILER

DEPTH TO WATER: 16.50 T/ PVC

DEPTH TO BOTTOM: 25.87 T/ PVC

WELL VOLUME: 1.54 ☐ LITERS ☑ GALLONS

VOLUME REMOVED: 0.8 ☐ LITERS ☑ GALLONS

COLOR: clear ODOR: none

TURBIDITY ☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

PH: 4.46 SU CONDUCTIVITY: 60.11 umhos/cm

ORP: 131.9 mV DO: 5.70 mg/L

TURBIDITY: 2.02 NTU

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 17.66 °C OTHER:

COLOR: clear ODOR: none

FILTRATE (0.45 um) ☐ YES ☒ NO

FILTRATE COLOR: FILTRATE ODOR:

QC SAMPLE: ☐ MS/MSD ☒ DUP- WAT-CCR-FGD-23101-3

POST TURBIDITY: 1.79 NTU TIME: 1512

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)
1341	130	4.47	62.53	104.7	6.22	7.02	16.05	16.60	INITIAL
1400		4.45	60.11	123.4	5.62	4.83	17.80	16.60	
1405		4.45	60.19	125.7	5.60	3.42	17.94	16.60	
1410		4.48	59.65	128.9	5.59	2.98	17.92	16.60	
1415		4.45	60.32	131.0	5.62	2.55	17.77	16.60	
1420		4.46	60.11	131.9	5.70	2.02	17.66	16.60	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
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:

REVISED 06/2011

TRC

WATER SAMPLE LOG

PROJECT NAME:	Wateree Station FGD-CCR	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0005.0000.4.2	BY: CS	DATE: 3/13/23	BY: 3/21/23	DATE: JAV

SAMPLE ID: AS-FGD-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: 1515	DATE: 3/13/23	SAMPLE	TIME: 1625	DATE: 3/13/23

PURGE METHOD: ☑ PUMP PERISTALTIC PUMP ☐ BAILER

DEPTH TO WATER: 16.06 T/ PVC

DEPTH TO BOTTOM: 25.407 T/ PVC

WELL VOLUME: 1.55 ☐ LITERS ☑ GALLONS

VOLUME REMOVED: 1.59 ☐ LITERS ☑ GALLONS

COLOR: Clear ODOR: N/A

TURBIDITY ☐ NONE ☑ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

PH: 4.55 SU CONDUCTIVITY: 76.96 umhos/cm

ORP: 109.0 mV DO: 4.04 mg/L

TURBIDITY: 5.20 NTU

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 17.56 °C OTHER:

COLOR: Clear ODOR: N/A

FILTRATE (0.45 um) ☐ YES ☒ NO

FILTRATE COLOR: FILTRATE ODOR:

QC SAMPLE: ☐ MS/MSD ☐ DUP-

POST TURBIDITY: 5.65 NTU TIME: 1635

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)
1550	150	4.62	82.99	87.0	4.53	21.6	15.09	16.11	INITIAL
1555		4.59	81.44	93.4	3.96	10.75	16.69	16.14	
1600		4.55	79.11	97.9	4.00	8.27	17.13	16.18	
1605		4.56	79.60	99.5	3.93	7.99	17.36	16.18	
1610		4.57	78.99	101.9	3.95	6.96	17.39	16.18	
1615		4.53	77.04	104.7	3.99	5.44	17.49	16.22	
1620		4.53	77.45	107.0	3.99	5.40	17.57	16.23	
1625		4.55	76.96	109.0	4.04	5.20	17.56	16.23	1.59

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 FGD-CCR	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0005.0000.4.2	BY: JMB	DATE: 3-13-23	BY: JAH	DATE: 3/21/23

SAMPLE ID: AS MW-FGD-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: 1531	DATE: 3-13-23

PURGE METHOD: ☑ PUMP PERISTALTIC PUMP ☐ BAILER

DEPTH TO WATER: 14.98 T/ PVC

DEPTH TO BOTTOM: ~~20.03~~ T/ PVC 26.36

WELL VOLUME: 1.58 ☐ LITERS ☑ GALLONS

VOLUME REMOVED: 0.6 ☐ LITERS ☑ GALLONS

COLOR: clear ODOR: none

TURBIDITY

☐ NONE ☒ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

SAMPLE	TIME: 1605	DATE: 3-13-23

PH: 4.46 SU CONDUCTIVITY: 59.00 umhos/cm

ORP: 112.6 mV DO: 2.58 mg/L

TURBIDITY: 0.81 NTU

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 17.90 °C OTHER:

COLOR: clear ODOR: none

FILTRATE (0.45 um) ☐ YES ☒ NO

FILTRATE COLOR: FILTRATE ODOR:

QC SAMPLE: ☐ MS/MSD ☒ DUP- WAT-CCR-FGD-23102

POST TURBIDITY: 0.07 NTU TIME: 1618

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)
1533	120	4.43	60.81	119.9	2.94	5.59	16.59	15.00	INITIAL
1550	|	4.44	59.04	114.4	2.59	0.80	17.93	15.00	|
1555	|	4.46	59.02	112.9	2.57	0.85	17.89	15.00	|
1600	|	4.46	59.39	112.5	2.51	0.83	17.94	15.00	|
1605		4.46	59.00	112.6	2.58	0.81	17.90	15.00	

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 FGD-CCR	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0005.0000.4.2	BY: CS	DATE: 3/13/23	BY: JAH	DATE: 3/21/23

SAMPLE ID: **FGD Pond B** | WELL DIAMETER: ☐ 2" ☐ 4" ☐ 6" ☑ OTHER **Wastewater**

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

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

PURGING	TIME:	DATE:

PURGE METHOD: ☐ PUMP ☐ BAILER

DEPTH TO WATER: NA T/ PVC

DEPTH TO BOTTOM: NA T/ PVC

WELL VOLUME: NA ☐ LITERS ☑ GALLONS

VOLUME REMOVED: NA ☐ LITERS ☑ GALLONS

COLOR: ODOR:

TURBIDITY ☐ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

SAMPLE	TIME: 1637	DATE: 3/13/23

PH: 6.49 SU CONDUCTIVITY: 17,093 umhos/cm

ORP: 135.9 mV DO: 9.72 mg/L

TURBIDITY: 73.7 NTU

☐ NONE ☐ SLIGHT ☒ MODERATE ☐ VERY

TEMPERATURE: 14.74 °C OTHER:

COLOR: light tan ODOR: N/A

FILTRATE (0.45 um) ☐ YES ☒ NO

FILTRATE COLOR: FILTRATE ODOR:

QC SAMPLE: ☐ MS/MSD ☐ DUP-

POST TURBIDITY: N/a NTU TIME: N/a

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)
1637	—	6.49	17,093	135.9	9.72	73.7	14.74	—	INITIAL

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:

~~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: 3/13/2023

PH CALIBRATION CHECK

pH 7 (LOT #): 2216893 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	pH 4 / 10 (LOT #): 21820202 (EXP. DATE): 12/23 PRE-CAL. READING / STANDARD	CAL. RANGE	TIME
6.88 / 7.00	9.84 / 10.00	☐ WITHIN RANGE	1052
/	4.21 / 4.00	☐ WITHIN RANGE	1105
7.04 / 7.00	10.00 / 10.00	☒ WITHIN RANGE	1055
/	4.00 / 4.00	☒ WITHIN RANGE	1107

ORP CALIBRATION CHECK

CAL. READING (LOT #): 21390144 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
231.4 / 228.6	16.39	☐ WITHIN RANGE	1113
227.9 / 228.0	16.41	☒ WITHIN RANGE	1115
/		☐ 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
0.01 / 0.00	0.01 / 0.00	☒ WITHIN RANGE	1110
1.11 / 1.00	0.94 / 1.00	☒ WITHIN RANGE	1111
9.05 / 10.00	9.99 / 10.00	☒ WITHIN RANGE	1112
/	/	☐ WITHIN RANGE	

NOTES

n/a

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): 21470032 (EXP. DATE): 4/23 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
4461.5 / 4490.0	15.72	☐ WITHIN RANGE	1108
4484.0 / 4490.0	15.84	☒ WITHIN RANGE	1109
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CALIBRATION READING (mg/L)	CAL. RANGE	TIME
Baro: 757.23 mmHg Temp: 16.38°C Calc: 9.7 mg/L Act: 9.68 mg/L	☒ WITHIN RANGE	1050
	☐ 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
none	none

Jacob Bradley — SIGNED — 3/13/23 DATE

CHECKED BY — 3/21/23 DATE

TRC

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	Wateree Station	MODEL:	Aqua Troll 400	SAMPLER:	JB / (RC) / CS
PROJECT NO.:	416559.0005.0000	SERIAL #:	909268	DATE:	3/13/2023

PH CALIBRATION CHECK

pH 7 (LOT #): 2216893 (EXP. DATE): 11/23 — PRE-CAL. READING / STANDARD	pH 4 / 10 (LOT #): 21320209 (EXP. DATE): 12/23 — PRE-CAL. READING / STANDARD	CAL. RANGE	TIME
6.65 / 7.00	10.04 / 10.00	[X] WITHIN RANGE	1059
/	4.40 / 4.00	[ ] WITHIN RANGE	
7.02 / 7.00	10.09 / 10.00	[X] WITHIN RANGE	1101
/	4.00 / 4.00	[X] WITHIN RANGE	1103

ORP CALIBRATION CHECK

CAL. READING (LOT #): 21390144 (EXP. DATE): 11/23 — PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
224.7 / 228.0	16.60	[ ] WITHIN RANGE	
228.0 / 228.0	16.61	[X] WITHIN RANGE	1109
/		[ ] 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
0.00 / 0.00	0.00 / 0.00	[X] WITHIN RANGE	1113
0.64 / 1.00	0.97 / 1.00	[X] WITHIN RANGE	1114
9.40 / 10.00	9.90 / 10.00	[X] WITHIN RANGE	1115
/	/	[ ] WITHIN RANGE	

NOTES

n/a

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): 21470032 (EXP. DATE): 4/23 — PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
4620.2 / 4490.0	16.77	[ ] WITHIN RANGE	
4487.8 / 4490.0	16.74	[X] WITHIN RANGE	1106
/		[ ] WITHIN RANGE	
/		[ ] WITHIN RANGE	

D.O. CALIBRATION CHECK

CALIBRATION READING (mg/L)	CAL. RANGE	TIME
Baro: 757.68 mmHg Temp: 16.20°C Calc: 9.8 mg/L Act: 9.78 mg/L	[X] WITHIN RANGE	1116
	[ ] WITHIN RANGE	
	[ ] WITHIN RANGE	
	[ ] 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	
[ ]	_____		

PROBLEMS ENCOUNTERED	CORRECTIVE ACTIONS
none	none

SIGNED _____ DATE 03/13/23

CHECKED BY _____ DATE 3/21/23

REVISED 06/2011

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	Wateree Station	MODEL: Aqua Troll 400	SAMPLER: JB / RC / CS
PROJECT NO.:	416559.0005.0000	SERIAL #: 683546	DATE: 3/13/23

PH CALIBRATION CHECK

pH 7 (LOT #): 2216893 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	pH 4 / 10 (LOT #): Autocal/21320202 (EXP. DATE): Huto cal 1/2/23 PRE-CAL. READING / STANDARD	CAL. RANGE	TIME
7.18 / 7.00	9.79 / 10.00	☐ WITHIN RANGE	1040
Post 7.04 / 7.00	4.27 / 4.00	☐ WITHIN RANGE	
/	Post 10.09 / 10.00	☑ WITHIN RANGE	1042
/	4.00 / 4.00	☒ WITHIN RANGE	1048

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): Huto Cal (EXP. DATE): PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
~~4491.0 / 4490.0~~ (CS)		☒ WITHIN RANGE	~~1050~~
4491.0 / 4490.0 (CS)	16.66	☐ WITHIN RANGE	1050
4490.6 / 4490.0	16.62	☒ WITHIN RANGE	1055
/		☐ WITHIN RANGE	

ORP CALIBRATION CHECK

CAL. READING (LOT #): 21596144 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
224.2 / 228	16.82	☐ WITHIN RANGE	1036
/	~~16.58~~ (CS)	☐ WITHIN RANGE	
Post 228.1 / 228	16.58	☒ WITHIN RANGE	1035
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CALIBRATION READING (mg/L)	CAL. RANGE	TIME
Temp - 19.01°C Pressure - 757.74 mmHg 100% sat on instrument - 101.6% Actual 100% - 99.7 Oxygen Solubility - 9.48 Actual Sol - 9.20	☑ WITHIN RANGE	1035
	☐ WITHIN RANGE	
	☐ WITHIN RANGE	
	☐ WITHIN RANGE	

TURBIDITY CALIBRATION CHECK

CALIBRATION READING (NTU) (LOT #): model - (EXP. DATE): 1511-4111 PRE-CAL. READING / STANDARD	(LOT #): n/a (EXP. DATE): n/a POST-CAL. READING / STANDARD	CAL. RANGE	TIME
-0.01 / 0.00	0.00 / 0.00	☒ WITHIN RANGE	1100
1.12 / 1.00	1.04 / 1.00	☒ WITHIN RANGE	1102
8.79 / 10.00	9.95 / 10.00	☒ WITHIN RANGE	1105
/	/	☐ WITHIN RANGE	

COMMENTS

☒ AUTOCAL SOLUTION (LOT #): 2225053 (EXP. DATE): 11/23

☐ STANDARD SOLUTION (S)

LIST LOT NUMBERS AND EXPIRATION DATES UNDER CALIBRATION CHECK

CALIBRATED PARAMETERS		CALIBRATION RANGES (1)	
☒	pH 4.0	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 _____ 3/13/23 DATE

CHECKED BY _____ 3/21/23 DATE

REVISED 06/2011

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

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: 614613

Dear Kelly Hicks:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on March 15, 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,

M Boddiford

Meredith Boddiford
Project Manager

Purchase Order: 50149867
Enclosures

Table of Contents

Case Narrative

Receipt Narrative
for
Dominion Energy (50149867)
SDG: 614613

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 15, 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.

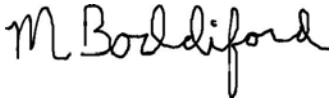
Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
614613001	MW-FGD-01-2023Q1
614613002	MW-FGD-02-2023Q1
614613003	MW-FGD-03-2023Q1
614613004	MW-FGD-04-2023Q1
614613005	MW-FGD-05-2023Q1
614613006	DU-WAT-CCR-FGD-23101
614613007	AS-FGD-01-2023Q1
614613008	AS-FGD-02-2023Q1
614613009	AS-FGD-03-2023Q1
614613010	FBLK-WAT-CCR-FGD-23101

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 # 416559.0005.0000.4.2
GEL Quote #:
COC Number (1):
PO Number: PO 50149867

Page 55 of 59

SDG: 614613 Rev1

GEL Laboratories LLC 614613
gel.com
Chemistry | Radiochemistry | Radiobioassay | Specialty Analytics

Chain of Custody and Analytical Request

GEL Work Order Number: 228223 **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 FGD 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	Cl, Fl, SO4 EPA 300.0	TDS - SM2540C	Total Metals See list in comments	NI	<-- Preservative Type (6)	Comments
MW-FGD-01-2023Q1	3-13-23	1500	N	N	GW	N		3	X	X	X			
MW-FGD-02-2023Q1	3-13-23	1700	N	N	GW	N		3	X	X	X			EPA 200.8 - B and Ca
MW-FGD-03-2023Q1	3-14-23	1052	N	N	GW	N		3	X	X	X			
MW-FGD-04-2023Q1	3-14-23	1029	N	N	GW	N		3	X	X	X			
MW-FGD-05-2023Q1 ms/msd	3-14-23	1025	N	N	GW	N		6	X	X	X			
DU-WAT-CCR-FGD-23101	3-13-23	—	FD	N	GW	N		3	X	X	X			see attached work order for details

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1		3-15-23	1205		3/15/23	1205
2		3/15/23	1540	Priyasha Tatini	3/15/23	1540
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 # 416559.0005.0000.4.2
GEL Quote #:
COC Number [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: 228223
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 FGD 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]	Radioactive (If yes, please supply isotopic info.)	(7) Known or possible Hazards	Total number of containers	Cl, Fl, SO4 EPA 300.0	TDS - SM2540C	Total Metals See list in comments (NI)								Comments: Note: extra sample is required for sample specific QC (<-- Preservative Type (6))
AS-FGD-01-2023Q1	3-13-23	1420	N	N	GW	N		3	X	X	X								
AS-FGD-02-2023Q1	3-13-23	1625	N	N	GW	N		3	X	X	X								EPA 200.8 - B and Ca
AS-FGD-03-2023Q1	3-13-23	1605	N	N	GW	N		3	X	X	X								
FBLK-WAT-CCR-FGD-23101	3-14-23	1035	FB	N	AQ	N		3	X	X	X								
																			see attached work
																			order for details

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1	[signature]	3-15-23	1205	[signature]	3-15-23	1205
2	[signature]	3-15-23	1540	Thyasia Tatum	3/15/23	1540
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.)*

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: DUNN	SDG/AR/COC/Work Order: 614613
Received By: Thyasia Tatum	Date Received: 3/15/23
Enter one tracking number per line below.	IR temperature gun # IR2-20 Daily Calibration performed? Y / N
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 </=6oC is identified as out of specification.
Courier	Uncorrected Temp: 1.1 IR Correction Factor: + / - 0 Final Recorded Temp: 1.0 Within 0.0-6.0C? Y / N
Courier	Uncorrected Temp: 2.6 IR Correction Factor: + / - 0 Final Recorded Temp: 3.0 Within 0.0-6.0C? Y / N
Courier	Uncorrected Temp: 1.3 IR Correction Factor: + / - 0 Final Recorded Temp: 1.0 Within 0.0-6.0C? Y / N
Courier	Uncorrected Temp: 0.8 IR Correction Factor: + / - 0 Final Recorded Temp: 1.0 Within 0.0-6.0C? Y / N
Courier	Uncorrected Temp: 1.2 IR Correction Factor: + / - 0 Final Recorded Temp: 1.1 Within 0.0-6.0C? Y / N
	Uncorrected Temp: IR Correction Factor: + / - Final Recorded Temp: 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#: UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___ If
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. Flammable Foreign Soil RCRA Asbestos Beryllium Other: PCB's

	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 chemical preservation at proper pH?	✓			Sample ID's and Containers Affected: If Preservation added, Lot#:
5	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:
6	Samples received within holding time?	✓			ID's and tests affected:
7	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
8	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
9	Number of containers received match number indicated on COC?			✓	Circle Applicable: No container count on COC Other (describe) See Below
10	Are sample containers identifiable as GEL provided by use of GEL labels?	✓			
11	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

Received 2 containers for ID: Upstream. COC has 1 container.
Received 1 container for ID: Downstream. COC has 2 containers.

PM (or PMA) review: Initials MG Date 3/16/23 Page 1 of 1

GL-CHL-SR-001A

GL-CHL-SR-001A

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 #: 614613

Product: Determination of Metals by ICP-MS
Analytical Method: EPA 200.8 SC_NPDES
Analytical Procedure: GL-MA-E-014 REV# 35
Analytical Batch: 2399662

Preparation Method: EPA 200.2
Preparation Procedure: GL-MA-E-016 REV# 18
Preparation Batch: 2399661

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

GEL Sample ID#	Client Sample Identification
614613001	MW-FGD-01-2023Q1
614613002	MW-FGD-02-2023Q1
614613003	MW-FGD-03-2023Q1
614613004	MW-FGD-04-2023Q1
614613005	MW-FGD-05-2023Q1
614613006	DU-WAT-CCR-FGD-23101
614613007	AS-FGD-01-2023Q1
614613008	AS-FGD-02-2023Q1
614613009	AS-FGD-03-2023Q1
614613010	FBLK-WAT-CCR-FGD-23101
1205347859	Method Blank (MB)**ICP-MS**
1205347860	Laboratory Control Sample (LCS)
1205347863	614613005(MW-FGD-05-2023Q1L) Serial Dilution (SD)
1205347861	614613005(MW-FGD-05-2023Q1D) Sample Duplicate (DUP)
1205347862	614613005(MW-FGD-05-2023Q1S) 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.

Technical Information

Sample Dilutions

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. Per the SOP, samples 614613002 (MW-FGD-02-2023Q1) and 614613004 (MW-FGD-04-2023Q1) were diluted due to internal standard recoveries outside the acceptable control limits.

Analyte	614613	
	002	004
Boron	5X	5X
Calcium	5X	5X

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: 614613 GEL Work Order: 614613

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: Alan Stanley**

Date: 21 MAR 2023 **Title: Team Leader**

Sample Data Summary

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614613 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614613001 **BASIS:** As Received **DATE COLLECTED** 13-MAR-23

CLIENT ID: MW-FGD-01-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 15-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	7.56	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/19/23 22:11	230319-2	2399662
7440-70-2	Calcium	1500	ug/L		30.0	100	100	1	MS	PRB	03/19/23 22:11	230319-2	2399662

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2399662	2399661	EPA 200.2	50	mL	50	mL	03/18/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614613 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614613002 **BASIS:** As Received **DATE COLLECTED** 13-MAR-23

CLIENT ID: MW-FGD-02-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 15-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	24.8	ug/L	J	20.0	75.0	75.0	5	MS	PRB	03/20/23 17:49	230320-1	2399662
7440-70-2	Calcium	8390	ug/L		150	500	500	5	MS	PRB	03/20/23 17:49	230320-1	2399662

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2399662	2399661	EPA 200.2	50	mL	50	mL	03/18/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614613 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614613003 **BASIS:** As Received **DATE COLLECTED** 14-MAR-23

CLIENT ID: MW-FGD-03-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 15-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	11.3	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/19/23 22:17	230319-2	2399662
7440-70-2	Calcium	7020	ug/L		30.0	100	100	1	MS	PRB	03/19/23 22:17	230319-2	2399662

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2399662	2399661	EPA 200.2	50	mL	50	mL	03/18/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614613 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614613004 **BASIS:** As Received **DATE COLLECTED** 14-MAR-23

CLIENT ID: MW-FGD-04-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 15-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	20.0	ug/L	U	20.0	75.0	75.0	5	MS	PRB	03/20/23 17:51	230320-1	2399662
7440-70-2	Calcium	4890	ug/L		150	500	500	5	MS	PRB	03/20/23 17:51	230320-1	2399662

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2399662	2399661	EPA 200.2	50	mL	50	mL	03/18/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614613 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614613005 **BASIS:** As Received **DATE COLLECTED** 14-MAR-23

CLIENT ID: MW-FGD-05-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 15-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	31.4	ug/L		4.00	15.0	15.0	1	MS	PRB	03/19/23 22:31	230319-2	2399662
7440-70-2	Calcium	25500	ug/L		30.0	100	100	1	MS	PRB	03/19/23 22:31	230319-2	2399662

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2399662	2399661	EPA 200.2	50	mL	50	mL	03/18/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614613 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614613006 **BASIS:** As Received **DATE COLLECTED** 13-MAR-23

CLIENT ID: DU-WAT-CCR-FGD-23101 **LEVEL:** Low **DATE RECEIVED:** 15-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	7.65	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/19/23 22:54	230319-2	2399662
7440-70-2	Calcium	1820	ug/L		30.0	100	100	1	MS	PRB	03/19/23 22:54	230319-2	2399662

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2399662	2399661	EPA 200.2	50	mL	50	mL	03/18/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614613 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614613007 **BASIS:** As Received **DATE COLLECTED** 13-MAR-23

CLIENT ID: AS-FGD-01-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 15-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	4.78	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/19/23 22:58	230319-2	2399662
7440-70-2	Calcium	1170	ug/L		30.0	100	100	1	MS	PRB	03/19/23 22:58	230319-2	2399662

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2399662	2399661	EPA 200.2	50	mL	50	mL	03/18/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614613 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614613008 **BASIS:** As Received **DATE COLLECTED** 13-MAR-23

CLIENT ID: AS-FGD-02-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 15-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	14.1	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/19/23 23:01	230319-2	2399662
7440-70-2	Calcium	2930	ug/L		30.0	100	100	1	MS	PRB	03/19/23 23:01	230319-2	2399662

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2399662	2399661	EPA 200.2	50	mL	50	mL	03/18/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614613 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614613009 **BASIS:** As Received **DATE COLLECTED** 13-MAR-23

CLIENT ID: AS-FGD-03-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 15-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	7.17	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/19/23 23:04	230319-2	2399662
7440-70-2	Calcium	1760	ug/L		30.0	100	100	1	MS	PRB	03/19/23 23:04	230319-2	2399662

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2399662	2399661	EPA 200.2	50	mL	50	mL	03/18/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614613 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614613010 **BASIS:** As Received **DATE COLLECTED** 14-MAR-23

CLIENT ID: FBLK-WAT-CCR-FGD-231 **LEVEL:** Low **DATE RECEIVED:** 15-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	03/19/23 23:08	230319-2	2399662
7440-70-2	Calcium	30.0	ug/L	U	30.0	100	100	1	MS	PRB	03/19/23 23:08	230319-2	2399662

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2399662	2399661	EPA 200.2	50	mL	50	mL	03/18/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

Quality Control Summary

METALS
-2a-
Initial and Continuing Calibration Verification

SDG No: 614613

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	98.7	ug/L	100	ug/L	98.7	90.0 - 110.0	MS	19-MAR-23 21:30	230319-2
	Calcium	5150	ug/L	5000	ug/L	103	90.0 - 110.0	MS	19-MAR-23 21:30	230319-2
	Boron	99	ug/L	100	ug/L	99	90.0 - 110.0	MS	20-MAR-23 15:16	230320-1
	Calcium	5000	ug/L	5000	ug/L	100	90.0 - 110.0	MS	20-MAR-23 15:16	230320-1
CCV01										
	Boron	95.7	ug/L	100	ug/L	95.7	90.0 - 110.0	MS	19-MAR-23 21:47	230319-2
	Calcium	5070	ug/L	5000	ug/L	101.4	90.0 - 110.0	MS	19-MAR-23 21:47	230319-2
	Boron	93.5	ug/L	100	ug/L	93.5	90.0 - 110.0	MS	20-MAR-23 15:26	230320-1
	Calcium	5050	ug/L	5000	ug/L	101.1	90.0 - 110.0	MS	20-MAR-23 15:26	230320-1
CCV02										
	Boron	95.8	ug/L	100	ug/L	95.8	90.0 - 110.0	MS	19-MAR-23 21:57	230319-2
	Calcium	5180	ug/L	5000	ug/L	103.6	90.0 - 110.0	MS	19-MAR-23 21:57	230319-2
	Boron	93.6	ug/L	100	ug/L	93.6	90.0 - 110.0	MS	20-MAR-23 15:32	230320-1
	Calcium	5100	ug/L	5000	ug/L	102	90.0 - 110.0	MS	20-MAR-23 15:32	230320-1
CCV03										
	Boron	92.7	ug/L	100	ug/L	92.7	90.0 - 110.0	MS	19-MAR-23 22:24	230319-2
	Calcium	5190	ug/L	5000	ug/L	103.7	90.0 - 110.0	MS	19-MAR-23 22:24	230319-2
	Boron	101	ug/L	100	ug/L	100.6	90.0 - 110.0	MS	20-MAR-23 17:44	230320-1
	Calcium	5000	ug/L	5000	ug/L	100.1	90.0 - 110.0	MS	20-MAR-23 17:44	230320-1
CCV04										
	Boron	95.2	ug/L	100	ug/L	95.2	90.0 - 110.0	MS	19-MAR-23 22:48	230319-2
	Calcium	5150	ug/L	5000	ug/L	103.1	90.0 - 110.0	MS	19-MAR-23 22:48	230319-2
	Boron	101	ug/L	100	ug/L	100.5	90.0 - 110.0	MS	20-MAR-23 17:59	230320-1
	Calcium	5070	ug/L	5000	ug/L	101.4	90.0 - 110.0	MS	20-MAR-23 17:59	230320-1
CCV05										
	Boron	94.3	ug/L	100	ug/L	94.3	90.0 - 110.0	MS	19-MAR-23 23:21	230319-2
	Calcium	5130	ug/L	5000	ug/L	102.7	90.0 - 110.0	MS	19-MAR-23 23:21	230319-2

***Analytical Methods:**

MS EPA 200.8 SC_NPDES

EPA

METALS
-2b-
CRDL Standard for ICP & ICPMS

SDG No: 614613

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	14.4	ug/L	15	ug/L	96.1	70.0 - 130.0	MS	19-MAR-23 21:37	230319-2
	Calcium	242	ug/L	200	ug/L	121.2	70.0 - 130.0	MS	19-MAR-23 21:37	230319-2
	Boron	13.5	ug/L	15	ug/L	89.7	70.0 - 130.0	MS	20-MAR-23 15:20	230320-1
	Calcium	243	ug/L	200	ug/L	121.5	70.0 - 130.0	MS	20-MAR-23 15:20	230320-1
CRDL02										
	Calcium	232	ug/L	200	ug/L	115.9	70.0 - 130.0	MS	19-MAR-23 23:11	230319-2
	Boron	11.8	ug/L	15	ug/L	78.8	70.0 - 130.0	MS	19-MAR-23 23:11	230319-2
	Boron	12.2	ug/L	15	ug/L	81.4	70.0 - 130.0	MS	20-MAR-23 17:38	230320-1
	Calcium	236	ug/L	200	ug/L	118.2	70.0 - 130.0	MS	20-MAR-23 17:38	230320-1
CRDL03										
	Boron	13.1	ug/L	15	ug/L	87.2	70.0 - 130.0	MS	20-MAR-23 17:53	230320-1
	Calcium	235	ug/L	200	ug/L	117.3	70.0 - 130.0	MS	20-MAR-23 17:53	230320-1

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

Metals
-3a-
Initial and Continuing Calibration Blank Summary

SDG No.: 614613

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	19-MAR-23 21:33	230319-2
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	19-MAR-23 21:33	230319-2
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	20-MAR-23 15:18	230320-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	20-MAR-23 15:18	230320-1
CCB01										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	19-MAR-23 21:50	230319-2
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	19-MAR-23 21:50	230319-2
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	20-MAR-23 15:28	230320-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	20-MAR-23 15:28	230320-1
CCB02										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	19-MAR-23 22:00	230319-2
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	19-MAR-23 22:00	230319-2
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	20-MAR-23 15:34	230320-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	20-MAR-23 15:34	230320-1
CCB03										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	19-MAR-23 22:27	230319-2
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	19-MAR-23 22:27	230319-2
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	20-MAR-23 17:46	230320-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	20-MAR-23 17:46	230320-1
CCB04										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	19-MAR-23 22:51	230319-2
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	19-MAR-23 22:51	230319-2
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	20-MAR-23 18:01	230320-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	20-MAR-23 18:01	230320-1
CCB05										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	19-MAR-23 23:25	230319-2
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	19-MAR-23 23:25	230319-2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

EPA

METALS
-3b-
PREPARATION BLANK SUMMARY

SDG NO. 614613
Contract: DMNN00101
Matrix: GW

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1205347859								
	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: 614613

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									
	Calcium	95400	ug/L	100000	ug/L	95.4	80.0 - 120.0	20-MAR-23 15:22	230320-1
	Boron	2.07	ug/L					20-MAR-23 15:22	230320-1
ICSAB01									
	Calcium	96100	ug/L	100000	ug/L	96.1	80.0 - 120.0	20-MAR-23 15:24	230320-1
	Boron	19.9	ug/L	22.06	ug/L	90.3	80.0 - 120.0	20-MAR-23 15:24	230320-1
ICSA02									
	Calcium	95400	ug/L	100000	ug/L	95.4	80.0 - 120.0	20-MAR-23 15:46	230320-1
	Boron	1.29	ug/L					20-MAR-23 15:46	230320-1
ICSAB02									
	Calcium	95400	ug/L	100000	ug/L	95.4	80.0 - 120.0	20-MAR-23 15:48	230320-1
	Boron	20.6	ug/L	22.06	ug/L	93.6	80.0 - 120.0	20-MAR-23 15:48	230320-1
ICSA03									
	Calcium	94800	ug/L	100000	ug/L	94.8	80.0 - 120.0	20-MAR-23 16:46	230320-1
	Boron	-0.005	ug/L					20-MAR-23 16:46	230320-1
ICSAB03									
	Calcium	95300	ug/L	100000	ug/L	95.3	80.0 - 120.0	20-MAR-23 16:48	230320-1
	Boron	18.5	ug/L	22.06	ug/L	83.7	80.0 - 120.0	20-MAR-23 16:48	230320-1
ICSA04									
	Calcium	95700	ug/L	100000	ug/L	95.7	80.0 - 120.0	20-MAR-23 17:08	230320-1
	Boron	0.025	ug/L					20-MAR-23 17:08	230320-1
ICSAB04									
	Calcium	94700	ug/L	100000	ug/L	94.7	80.0 - 120.0	20-MAR-23 17:10	230320-1
	Boron	17.4	ug/L	22.06	ug/L	79.1	80.0 - 120.0	20-MAR-23 17:10	230320-1
ICSA05									
	Calcium	95100	ug/L	100000	ug/L	95.1	80.0 - 120.0	20-MAR-23 17:20	230320-1
	Boron	4.39	ug/L					20-MAR-23 17:20	230320-1
ICSAB05									
	Calcium	95400	ug/L	100000	ug/L	95.4	80.0 - 120.0	20-MAR-23 17:22	230320-1

EPA

METALS
-4-
Interference Check Sample

SDG No: 614613

Contract: DMNN00101 **Lab Code:** GEL

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	Analysis Date/Time	Run Number
	Boron	21.8	ug/L	22.06	ug/L	99	80.0 - 120.0	20-MAR-23 17:22	230320-1
ICSA06									
	Calcium	94300	ug/L	100000	ug/L	94.3	80.0 - 120.0	20-MAR-23 17:40	230320-1
	Boron	0.053	ug/L					20-MAR-23 17:40	230320-1
ICSAB06									
	Calcium	96000	ug/L	100000	ug/L	96	80.0 - 120.0	20-MAR-23 17:42	230320-1
	Boron	19.4	ug/L	22.06	ug/L	88	80.0 - 120.0	20-MAR-23 17:42	230320-1
ICSA07									
	Calcium	95200	ug/L	100000	ug/L	95.2	80.0 - 120.0	20-MAR-23 17:55	230320-1
	Boron	-0.069	ug/L					20-MAR-23 17:55	230320-1
ICSAB07									
	Calcium	94600	ug/L	100000	ug/L	94.6	80.0 - 120.0	20-MAR-23 17:57	230320-1
	Boron	20.4	ug/L	22.06	ug/L	92.3	80.0 - 120.0	20-MAR-23 17:57	230320-1

METALS
-4-
Interference Check Sample

SDG No: 614613

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									
	Calcium	95800	ug/L	100000	ug/L	95.8	80.0 - 120.0	19-MAR-23 21:40	230319-2
	Boron	3.11	ug/L					19-MAR-23 21:40	230319-2
ICSAB01									
	Calcium	97100	ug/L	100000	ug/L	97.1	80.0 - 120.0	19-MAR-23 21:44	230319-2
	Boron	22.3	ug/L	22.06	ug/L	101	80.0 - 120.0	19-MAR-23 21:44	230319-2
ICSA02									
	Calcium	96400	ug/L	100000	ug/L	96.4	80.0 - 120.0	19-MAR-23 23:15	230319-2
	Boron	1.37	ug/L					19-MAR-23 23:15	230319-2
ICSAB02									
	Calcium	97300	ug/L	100000	ug/L	97.3	80.0 - 120.0	19-MAR-23 23:18	230319-2
	Boron	19.6	ug/L	22.06	ug/L	88.7	80.0 - 120.0	19-MAR-23 23:18	230319-2

METALS
-5a-

Matrix Spike Summary

SDG NO. 614613 **Client ID:** MW-FGD-05-2023Q1S

Contract: DMNN00101 **Level:** Low

Matrix: GROUND WATER **% Solids:**

Sample ID: 614613005 **Spike ID:** 1205347862

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Boron	ug/L	75-125	125		31.4		100	93.5		MS
Calcium	ug/L		27700		25500		2000	113	N/A	MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

Metals
-6-
Duplicate Sample Summary

SDG No.: 614613 **Lab Code:** GEL

Contract: DMNN00101 **Client ID:** MW-FGD-05-2023Q1D

Matrix: GROUND WATER **Level:** Low

Sample ID: 614613005 **Duplicate ID:** 1205347861 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Boron	ug/L	+/-30	31.4		32.2		2.47		MS
Calcium	ug/L	+/-20%	25500		26400		3.61		MS

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

METALS
-7-
Laboratory Control Sample Summary

SDG NO. 614613

Contract: DMNN00101

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1205347860								
	Boron	ug/L	100	88.0		88	85-115	MS
	Calcium	ug/L	2000	2060		103	85-115	MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-9-
Serial Dilution Sample Summary

SDG NO. 614613 **Client ID:** MW-FGD-05-2023Q1L

Contract: DMNN00101

Matrix: LIQUID **Level:** Low

Sample ID: 614613005 **Serial Dilution ID:** 1205347863

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Boron	31.4		35	B	11.571			MS
Calcium	25500		25100		1.24		10	MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-13-
SAMPLE PREPARATION SUMMARY

SDG No: 614613 **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	2399661						
1205347859	MB for batch 2399661	MB	G	18-MAR-23	50mL	50mL	
1205347860	LCS for batch 2399661	LCS	G	18-MAR-23	50mL	50mL	
1205347862	MW-FGD-05-2023Q1S	MS	G	18-MAR-23	50mL	50mL	
1205347861	MW-FGD-05-2023Q1D	DUP	G	18-MAR-23	50mL	50mL	
614613001	MW-FGD-01-2023Q1	SAMPLE	G	18-MAR-23	50mL	50mL	
614613002	MW-FGD-02-2023Q1	SAMPLE	G	18-MAR-23	50mL	50mL	
614613003	MW-FGD-03-2023Q1	SAMPLE	G	18-MAR-23	50mL	50mL	
614613004	MW-FGD-04-2023Q1	SAMPLE	G	18-MAR-23	50mL	50mL	
614613005	MW-FGD-05-2023Q1	SAMPLE	G	18-MAR-23	50mL	50mL	
614613006	DU-WAT-CCR-FGD-23101	SAMPLE	G	18-MAR-23	50mL	50mL	
614613007	AS-FGD-01-2023Q1	SAMPLE	G	18-MAR-23	50mL	50mL	
614613008	AS-FGD-02-2023Q1	SAMPLE	G	18-MAR-23	50mL	50mL	
614613009	AS-FGD-03-2023Q1	SAMPLE	G	18-MAR-23	50mL	50mL	
614613010	FBLK-WAT-CCR-FGD-23101	SAMPLE	G	18-MAR-23	50mL	50mL	

EPA

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
Dominion Energy
SDG #: 614613

Product: **Ion Chromatography**
Analytical Method: EPA 300.0
Analytical Procedure: GL-GC-E-086 REV# 30
Analytical Batch: 2400563

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

GEL Sample ID#	Client Sample Identification
614613001	MW-FGD-01-2023Q1
614613002	MW-FGD-02-2023Q1
614613003	MW-FGD-03-2023Q1
614613004	MW-FGD-04-2023Q1
614613005	MW-FGD-05-2023Q1
614613006	DU-WAT-CCR-FGD-23101
614613007	AS-FGD-01-2023Q1
614613008	AS-FGD-02-2023Q1
614613009	AS-FGD-03-2023Q1
614613010	FBLK-WAT-CCR-FGD-23101
1205349696	Method Blank (MB)
1205349697	Laboratory Control Sample (LCS)
1205349698	614613005(MW-FGD-05-2023Q1) Sample Duplicate (DUP)
1205349699	614613005(MW-FGD-05-2023Q1) Post Spike (PS)
1205349700	614765002(MW-BG-74-2023Q1-3) Sample Duplicate (DUP)
1205349701	614765002(MW-BG-74-2023Q1-3) Post Spike (PS)

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

Data Summary:

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

Technical Information

Sample Dilutions
The following samples 1205349698 (MW-FGD-05-2023Q1DUP), 1205349699 (MW-FGD-05-2023Q1PS), 614613001 (MW-FGD-01-2023Q1), 614613003 (MW-FGD-03-2023Q1), 614613004 (MW-FGD-04-2023Q1), 614613005 (MW-FGD-05-2023Q1), 614613006 (DU-WAT-CCR-FGD-23101) and 614613009 (AS-FGD-03-2023Q1) 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	614613					
	001	**003**	**004**	**005**	**006**	**009**
Chloride	2X	1X	5X	5X	2X	2X
Sulfate	1X	2X	1X	5X	1X	1X

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: 2400151

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

GEL Sample ID#	Client Sample Identification
614613001	MW-FGD-01-2023Q1
614613002	MW-FGD-02-2023Q1
614613003	MW-FGD-03-2023Q1
614613004	MW-FGD-04-2023Q1
614613005	MW-FGD-05-2023Q1
614613006	DU-WAT-CCR-FGD-23101
614613007	AS-FGD-01-2023Q1
614613008	AS-FGD-02-2023Q1
614613009	AS-FGD-03-2023Q1
614613010	FBLK-WAT-CCR-FGD-23101
1205348939	Method Blank (MB)
1205348940	Laboratory Control Sample (LCS)
1205348941	614613005(MW-FGD-05-2023Q1) Sample Duplicate (DUP)
1205348942	614765002(MW-BG-74-2023Q1-3) 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.

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: 614613 GEL Work Order: 614613

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: 28 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 28, 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-FGD-01-2023Q1	Project:	DMNN00101
Sample ID:	614613001	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	13-MAR-23 15:00		
Receive Date:	15-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"												
Fluoride	J	0.0672	0.0330	0.100	mg/L		1	HXC1	03/17/23	2238	2400563	1
Sulfate		0.962	0.133	0.400	mg/L		1					
Chloride		9.45	0.134	0.400	mg/L		2	HXC1	03/18/23	1508	2400563	2
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		14.0	2.38	10.0	mg/L			CH6	03/18/23	1211	2400151	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

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

Certificate of Analysis

Report Date: March 28, 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-FGD-02-2023Q1	Project:	DMNN00101
Sample ID:	614613002	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	13-MAR-23 17:00		
Receive Date:	15-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		7.36	0.0670	0.200	mg/L		1	HXC1	03/17/23	2309	2400563	1
Fluoride	U	ND	0.0330	0.100	mg/L		1					
Sulfate		8.59	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		36.0	2.38	10.0	mg/L			CH6	03/18/23	1211	2400151	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 28, 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-FGD-03-2023Q1	Project:	DMNN00101
Sample ID:	614613003	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	14-MAR-23 10:52		
Receive Date:	15-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		6.59	0.0670	0.200	mg/L		1	HXC1	03/17/23	2339	2400563	1
Fluoride	J	0.0905	0.0330	0.100	mg/L		1					
Sulfate		25.8	0.266	0.800	mg/L		2	HXC1	03/18/23	1915	2400563	2
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		39.0	2.38	10.0	mg/L			CH6	03/18/23	1211	2400151	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

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

Certificate of Analysis

Report Date: March 28, 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-FGD-04-2023Q1	Project:	DMNN00101
Sample ID:	614613004	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	14-MAR-23 10:29		
Receive Date:	15-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"												
Fluoride	J	0.0876	0.0330	0.100	mg/L		1	HXC1	03/18/23	0010	2400563	1
Sulfate		5.24	0.133	0.400	mg/L		1					
Chloride		20.2	0.335	1.00	mg/L		5	HXC1	03/18/23	1946	2400563	2
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		46.0	2.38	10.0	mg/L			CH6	03/18/23	1211	2400151	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

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

Certificate of Analysis

Report Date: March 28, 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-FGD-05-2023Q1	Project:	DMNN00101
Sample ID:	614613005	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	14-MAR-23 10:25		
Receive Date:	15-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		10.6	0.335	1.00	mg/L		5	HXC1	03/18/23	1610	2400563	1
Sulfate		22.1	0.665	2.00	mg/L		5					
Fluoride	J	0.0712	0.0330	0.100	mg/L		1	HXC1	03/18/23	0214	2400563	2
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		105	2.38	10.0	mg/L			CH6	03/18/23	1211	2400151	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

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

Certificate of Analysis

Report Date: March 28, 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-FGD-23101	Project:	DMNN00101
Sample ID:	614613006	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	13-MAR-23 12:00		
Receive Date:	15-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		9.33	0.134	0.400	mg/L		2	HXC1	03/18/23	1743	2400563	1
Fluoride	J	0.0863	0.0330	0.100	mg/L		1	HXC1	03/18/23	0244	2400563	2
Sulfate		2.62	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	03/18/23	1211	2400151	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: March 28, 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-FGD-01-2023Q1	Project:	DMNN00101
Sample ID:	614613007	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	13-MAR-23 14:20		
Receive Date:	15-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		8.54	0.0670	0.200	mg/L		1	HXC1	03/18/23	0315	2400563	1
Fluoride	U	ND	0.0330	0.100	mg/L		1					
Sulfate	J	0.326	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		26.0	2.38	10.0	mg/L			CH6	03/18/23	1211	2400151	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 28, 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-FGD-02-2023Q1	Project:	DMNN00101
Sample ID:	614613008	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	13-MAR-23 16:25		
Receive Date:	15-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		8.07	0.0670	0.200	mg/L		1	HXC1	03/18/23	0346	2400563	1
Fluoride	J	0.0657	0.0330	0.100	mg/L		1					
Sulfate		8.66	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		21.0	2.38	10.0	mg/L			CH6	03/18/23	1211	2400151	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 28, 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-FGD-03-2023Q1	Project:	DMNN00101
Sample ID:	614613009	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	13-MAR-23 16:05		
Receive Date:	15-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		9.31	0.134	0.400	mg/L		2	HXC1	03/18/23	1813	2400563	1
Fluoride	J	0.0621	0.0330	0.100	mg/L		1	HXC1	03/18/23	0417	2400563	2
Sulfate		2.59	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	03/18/23	1211	2400151	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

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

Certificate of Analysis

Report Date: March 28, 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-FGD-23101	Project:	DMNN00101
Sample ID:	614613010	Client ID:	DMNN001
Matrix:	AQ		
Collect Date:	14-MAR-23 10:35		
Receive Date:	15-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	J	0.197	0.0670	0.200	mg/L		1	HXC1	03/18/23	0448	2400563	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	03/18/23	1211	2400151	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 28, 2023

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

Contact: **Kelly Hicks**

Workorder: **614613**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 2400563										
QC1205349698 614613005 DUP										
Chloride		10.6		10.6	mg/L	0.0189		(0%-20%)	HXC1	03/18/23 16:41
Fluoride	J	0.0712	J	0.0700	mg/L	1.7 ^		(+/-0.100)		03/18/23 09:56
Sulfate		22.1		22.1	mg/L	0.36		(0%-20%)		03/18/23 16:41
QC1205349700 614765002 DUP										
Chloride		4.13		4.13	mg/L	0.00484		(0%-20%)		03/18/23 10:58
Fluoride	J	0.0971		0.184	mg/L	61.7 ^		(+/-0.100)		
Sulfate		4.75		4.74	mg/L	0.394		(0%-20%)		
QC1205349697 LCS										
Chloride	5.00			4.85	mg/L		97.1	(90%-110%)		03/18/23 09:25
Fluoride	2.50			2.51	mg/L		100	(90%-110%)		
Sulfate	10.0			9.87	mg/L		98.7	(90%-110%)		
QC1205349696 MB										
Chloride			U	ND	mg/L					03/18/23 08:54
Fluoride			U	ND	mg/L					
Sulfate			U	ND	mg/L					
QC1205349699 614613005 PS										
Chloride	5.00	2.12		7.34	mg/L		105	(90%-110%)		03/18/23 17:12

QC Summary

Workorder: **614613**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 2400563											
Fluoride	2.50	J	0.0712		2.73	mg/L		106	(90%-110%)	HXC1	03/18/23 10:27
Sulfate	10.0		4.43		15.0	mg/L		105	(90%-110%)		03/18/23 17:12
QC1205349701 614765002 PS											
Chloride	5.00		4.13		9.59	mg/L		109	(90%-110%)		03/18/23 11:29
Fluoride	2.50	J	0.0971		2.63	mg/L		101	(90%-110%)		
Sulfate	10.0		4.75		15.2	mg/L		104	(90%-110%)		
Solids Analysis											
Batch 2400151											
QC1205348941 614613005 DUP											
Total Dissolved Solids			105		110	mg/L	4.65		(0%-5%)	CH6	03/18/23 12:11
QC1205348942 614765002 DUP											
Total Dissolved Solids			30.0		38.0	mg/L	23.5 ^		(+/-10.0)		03/18/23 12:11
QC1205348940 LCS											
Total Dissolved Solids	300				300	mg/L		100	(95%-105%)		03/18/23 12:11
QC1205348939 MB											
Total Dissolved Solids				U	ND	mg/L					03/18/23 12:11

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: **614613**

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.

ENVIRONMENTAL® STANDARDS
Montrose Environmental Group

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:

614613

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-FGD-01-2023Q1	MW-FGD-01	N	EPA 200.8	Boron	T	7.56	J	RL	4.00	15.0		ug/L
MW-FGD-01-2023Q1	MW-FGD-01	N	EPA 300.0	Fluoride	N	0.0672	J	RL	0.0330	0.100		mg/L
MW-FGD-02-2023Q1	MW-FGD-02	N	EPA 200.8	Boron	T	24.8	J	RL	20.0	75.0		ug/L
MW-FGD-03-2023Q1	MW-FGD-03	N	EPA 200.8	Boron	T	11.3	J	RL	4.00	15.0		ug/L
MW-FGD-03-2023Q1	MW-FGD-03	N	EPA 300.0	Fluoride	N	0.0905	J	RL	0.0330	0.100		mg/L
MW-FGD-04-2023Q1	MW-FGD-04	N	EPA 300.0	Fluoride	N	0.0876	J	RL	0.0330	0.100		mg/L
MW-FGD-05-2023Q1	MW-FGD-05	N	EPA 300.0	Fluoride	N	0.0712	J	RL	0.0330	0.100		mg/L
DU-WAT-CCR-FGD-23102_1200	AS-FGD-03	FD	EPA 200.8	Boron	T	7.65	J	RL	4.00	15.0		ug/L
DU-WAT-CCR-FGD-23102_1200	AS-FGD-03	FD	EPA 300.0	Fluoride	N	0.0863	J	RL	0.0330	0.100		mg/L
DU-WAT-CCR-FGD-23102_1200	AS-FGD-03	FD	SM 2540C	Total Dissolved Solids	N	9.00	J	RL	2.38	10.0		mg/L
AS-FGD-01-2023Q1	AS-FGD-01	N	EPA 200.8	Boron	T	4.78	J	RL	4.00	15.0		ug/L
AS-FGD-01-2023Q1	AS-FGD-01	N	EPA 300.0	Sulfate	N	0.326	J	RL	0.133	0.400		mg/L
AS-FGD-02-2023Q1	AS-FGD-02	N	EPA 200.8	Boron	T	14.1	J	RL	4.00	15.0		ug/L
AS-FGD-02-2023Q1	AS-FGD-02	N	EPA 300.0	Fluoride	N	0.0657	J	RL	0.0330	0.100		mg/L
AS-FGD-03-2023Q1	AS-FGD-03	N	EPA 200.8	Boron	T	7.17	J	RL	4.00	15.0		ug/L
AS-FGD-03-2023Q1	AS-FGD-03	N	EPA 300.0	Fluoride	N	0.0621	J	RL	0.0330	0.100		mg/L
FBLK-WAT-CCR-FGD-23101_1035	Field Blank	FB	EPA 300.0	Chloride	N	0.197	J	RL	0.0670	0.200		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: 614613

Lab Sample ID	614613001
Sys Sample Code	MW-FGD-01-2023Q1
Sample Name	MW-FGD-01-2023Q1
Sample Date	3/13/2023 3:00:00 PM
Location	WAT-MW-FGD-01 / MW-FGD-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	7.56	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	1500				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	9.45				0.134	0.134	0.400	Y	Yes	2	NA
	Fluoride	16984-48-8	N	mg/L	0.0672	J	RL		0.0330	0.0330	0.100	Y	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	0.962				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	14.0				2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	614613002
Sys Sample Code	MW-FGD-02-2023Q1
Sample Name	MW-FGD-02-2023Q1
Sample Date	3/13/2023 5:00:00 PM
Location	WAT-MW-FGD-02 / MW-FGD-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	24.8	J	RL		20.0	20.0	75.0	Y	Yes	5	NA
	Calcium	7440-70-2	T	ug/L	8390				150	150	500	Y	Yes	5	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	7.36				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	8.59				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	36.0				2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	614613003
Sys Sample Code	MW-FGD-03-2023Q1
Sample Name	MW-FGD-03-2023Q1
Sample Date	3/14/2023 10:52:00 AM
Location	WAT-MW-FGD-03 / MW-FGD-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	11.3	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	7020				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	6.59				0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L	0.0905	J	RL		0.0330	0.0330	0.100	Y	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	25.8				0.266	0.266	0.800	Y	Yes	2	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	39.0				2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	614613004
Sys Sample Code	MW-FGD-04-2023Q1
Sample Name	MW-FGD-04-2023Q1
Sample Date	3/14/2023 10:29:00 AM
Location	WAT-MW-FGD-04 / MW-FGD-04
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		U			20.0	20.0	75.0	N	Yes	5	NA
	Calcium	7440-70-2	T	ug/L	4890				150	150	500	Y	Yes	5	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	20.2				0.335	0.335	1.00	Y	Yes	5	NA
	Fluoride	16984-48-8	N	mg/L	0.0876	J	RL		0.0330	0.0330	0.100	Y	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	5.24				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	46.0				2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	614613005
Sys Sample Code	MW-FGD-05-2023Q1
Sample Name	MW-FGD-05-2023Q1
Sample Date	3/14/2023 10:25:00 AM
Location	WAT-MW-FGD-05 / MW-FGD-05
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	31.4				4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	25500				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	10.6				0.335	0.335	1.00	Y	Yes	5	NA
	Fluoride	16984-48-8	N	mg/L	0.0712	J	RL		0.0330	0.0330	0.100	Y	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	22.1				0.665	0.665	2.00	Y	Yes	5	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	105				2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	614613006
Sys Sample Code	DU-WAT-CCR-FGD-23102_1200
Sample Name	DU-WAT-CCR-FGD-23102
Sample Date	3/13/2023 12:00:00 PM
Location	WAT-AS-FGD-03 / AS-FGD-03
Sample Type	FD
Matrix	GW
Parent Sample	AS-FGD-03-2023Q1

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	7.65	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	9.33				0.134	0.134	0.400	Y	Yes	2	NA
	Fluoride	16984-48-8	N	mg/L	0.0863	J	RL		0.0330	0.0330	0.100	Y	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	2.62				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	9.00	J	RL		2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	614613007
Sys Sample Code	AS-FGD-01-2023Q1
Sample Name	AS-FGD-01-2023Q1
Sample Date	3/13/2023 2:20:00 PM
Location	WAT-AS-FGD-01 / AS-FGD-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	4.78	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	1170				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	8.54				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	0.326	J	RL		0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	26.0				2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	614613008
Sys Sample Code	AS-FGD-02-2023Q1
Sample Name	AS-FGD-02-2023Q1
Sample Date	3/13/2023 4:25:00 PM
Location	WAT-AS-FGD-02 / AS-FGD-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	14.1	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	2930				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	0.0657	J	RL		0.0330	0.0330	0.100	Y	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	8.66				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	21.0				2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	614613009
Sys Sample Code	AS-FGD-03-2023Q1
Sample Name	AS-FGD-03-2023Q1
Sample Date	3/13/2023 4:05:00 PM
Location	WAT-AS-FGD-03 / AS-FGD-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	7.17	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	9.31				0.134	0.134	0.400	Y	Yes	2	NA
	Fluoride	16984-48-8	N	mg/L	0.0621	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	14.0				2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	614613010
Sys Sample Code	FBLK-WAT-CCR-FGD-23101_1035
Sample Name	FBLK-WAT-CCR-FGD-23101
Sample Date	3/14/2023 10:35:00 AM
Location	WAT-CCRFGD-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	0.197	J	RL		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

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 24, 2023

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

Re: CCR Groundwater Monitoring - Level 1 Package
Work Order: 614613

Dear Kelly Hicks:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on March 15, 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: 614613

March 24, 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 15, 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
614613001	MW-FGD-01-2023Q1
614613002	MW-FGD-02-2023Q1
614613003	MW-FGD-03-2023Q1
614613004	MW-FGD-04-2023Q1
614613005	MW-FGD-05-2023Q1
614613006	DU-WAT-CCR-FGD-~~23101~~ 23102
614613007	AS-FGD-01-2023Q1
614613008	AS-FGD-02-2023Q1
614613009	AS-FGD-03-2023Q1
614613010	FBLK-WAT-CCR-FGD-23101

AMR 4/3/23

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

Meredith Boddiford
Project Manager

Chain of Custody and Supporting Documentation

Page: 1 of 2
Project # 416559.0005.0000.4.2
GEL Quote #:
COC Number [1]:
PO Number: PO 50149867

GEL Laboratories LLC 614613

gel.com
Chemistry | Radiochemistry | Radiobioassay | Specialty Analytics

Chain of Custody and Analytical Request

GEL Work Order Number: 228223 **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 FGD CCR 2023Q1 Fax #
Address: Wateree, South Carolina
Collected By: J. Bradley, C. Serowik Send Results To: AReed@envstd.com

SDG: 614611

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.)	(7) Known or possible Hazards	Total number of containers	Cl, Fl, SO4 EPA 300.0	TDS - SM2540C	Total Metals See list in comments	NI							<-- Preservative Type (6)
MW-FGD-01-2023Q1	3-13-23	1500	N	N	GW	N		3	X	X	X								
MW-FGD-02-2023Q1	3-13-23	1700	N	N	GW	N		3	X	X	X								EPA 200.8 - B and Ca
MW-FGD-03-2023Q1	3-14-23	1052	N	N	GW	N		3	X	X	X								
MW-FGD-04-2023Q1	3-14-23	1029	N	N	GW	N		3	X	X	X	✓							
MW-FGD-05-2023Q1 ms/msd	3-14-23	1025	N	N	GW	N		6	X	X	X								
DU-WAT-CCR-FGD-23101	3-13-23	—	FD	N	GW	N		3	X	X	X								see attached work
✓	✓	✓	✓	✓															order for details

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]	3-15-23	1205	[signature]	3.15.23	1205
2	[signature]	3/15/23	1540	Tayasia Tatum	3/15/23	1540
3				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 # 416559.0005.0000.4.2
GEL Quote #:
COC Number [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: 228223 **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 FGD CCR 2023Q1 Fax #
Address: Wateree, South Carolina
Collected By: J. Bradley, C. Serowik Send Results To: AReed@envstd.com

SDG: 63461613

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.)	(7) Known or possible Hazards	Total number of containers	Cl, Fl, SO4 EPA 300.0	TDS - SM2540C	Total Metals See list in comments	NI	<-- Preservative Type (6)	Comments
AS-FGD-01-2023Q1	3-13-23	1420	N	N	GW	N		3	X	X	X			
AS-FGD-02-2023Q1	3-13-23	1625	N	N	GW	N		3	X	X	X			EPA 200.8 - B and Ca
AS-FGD-03-2023Q1	3-13-23	1605	N	N	GW	N		3	X	X	X			
FBLK-WAT-CCR-FGD-23101	3-14-23	1035	FB	N	AQ	N		3	X	X	X			
✔	✔	✔	✔		✔								✔	
														see attached work
														order for details

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1		3-15-23	1205		3.15.23	1205
2		3.15.23	1540	Thyssenkrupp	3/15/23	1540
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.

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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: DUNN	SDG/AR/COC/Work Order: 614613
Received By: Thyasia Tatum	Date Received: 3/15/23
Enter one tracking number per line below.	IR temperature gun # IR2-20 Daily Calibration performed? (Y) / N
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 </=6oC is identified as out of specification.
Courier	Uncorrected Temp: 1.1 IR Correction Factor: + / - 0 Final Recorded Temp: 1.0 Within 0.0-6.0C? (Y) / N
Courier	Uncorrected Temp: 2.0 IR Correction Factor: + / - 0 Final Recorded Temp: 3.0 Within 0.0-6.0C? (Y) / N
Courier	Uncorrected Temp: 1.3 IR Correction Factor: + / - 0 Final Recorded Temp: 1.0 Within 0.0-6.0C? (Y) / N
Courier	Uncorrected Temp: 0.8 IR Correction Factor: + / - 0 Final Recorded Temp: 1.0 Within 0.0-6.0C? (Y) / N
Courier	Uncorrected Temp: 1.2 IR Correction Factor: + / - 0 Final Recorded Temp: 1.1 Within 0.0-6.0C? (Y) / N
	Uncorrected Temp: IR Correction Factor: + / - Final Recorded Temp: 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#: UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___ If
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. Flammable Foreign Soil RCRA Asbestos Beryllium Other: PCB's

	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 chemical preservation at proper pH?	✓			Sample ID's and Containers Affected: If Preservation added, Lot#:
5	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:
6	Samples received within holding time?	✓			ID's and tests affected:
7	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
8	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
9	Number of containers received match number indicated on COC?			✓	Circle Applicable: No container count on COC Other (describe) See Below
10	Are sample containers identifiable as GEL provided by use of GEL labels?	✓			
11	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

Received 2 containers for ID: Upstream. COC has 1 container.
Received 1 container for ID: Downstream. COC has 2 containers.

PM (or PMA) review: Initials MG Date 3/16/23 Page 1 of 1

GL-CHL-SR-001A

GL-CHL-SR-001A

Laboratory Certifications

List of current GEL Certifications as of 24 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 #: 614613

Product: **Determination of Metals by ICP-MS**
Analytical Method: EPA 200.8 SC_NPDES
Analytical Procedure: GL-MA-E-014 REV# 35
Analytical Batch: 2399662

Preparation Method: EPA 200.2
Preparation Procedure: GL-MA-E-016 REV# 18
Preparation Batch: 2399661

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

GEL Sample ID#	Client Sample Identification
614613001	MW-FGD-01-2023Q1
614613002	MW-FGD-02-2023Q1
614613003	MW-FGD-03-2023Q1
614613004	MW-FGD-04-2023Q1
614613005	MW-FGD-05-2023Q1
614613006	DU-WAT-CCR-FGD-~~23101~~ 23102 AMR 4/3/23
614613007	AS-FGD-01-2023Q1
614613008	AS-FGD-02-2023Q1
614613009	AS-FGD-03-2023Q1
614613010	FBLK-WAT-CCR-FGD-23101
1205347859	Method Blank (MB)**ICP-MS**
1205347860	Laboratory Control Sample (LCS)
1205347863	614613005(MW-FGD-05-2023Q1L) Serial Dilution (SD)
1205347861	614613005(MW-FGD-05-2023Q1D) Sample Duplicate (DUP)
1205347862	614613005(MW-FGD-05-2023Q1S) 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.

Technical Information

Sample Dilutions

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. Per the SOP, samples 614613002 (MW-FGD-02-2023Q1) and 614613004 (MW-FGD-04-2023Q1) were diluted due to internal standard recoveries outside the acceptable control limits.

Analyte	614613	
	002	**004**
Boron	5X	5X
Calcium	5X	5X

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: 614613 GEL Work Order: 614613

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: Alan Stanley**

Date: 21 MAR 2023 **Title: Team Leader**

Sample Data Summary

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614613 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614613001 **BASIS:** As Received **DATE COLLECTED** 13-MAR-23

CLIENT ID: MW-FGD-01-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 15-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	7.56	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/19/23 22:11	230319-2	2399662
7440-70-2	Calcium	1500	ug/L		30.0	100	100	1	MS	PRB	03/19/23 22:11	230319-2	2399662

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2399662	2399661	EPA 200.2	50	mL	50	mL	03/18/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614613 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614613002 **BASIS:** As Received **DATE COLLECTED** 13-MAR-23

CLIENT ID: MW-FGD-02-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 15-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	24.8	ug/L	J	20.0	75.0	75.0	5	MS	PRB	03/20/23 17:49	230320-1	2399662
7440-70-2	Calcium	8390	ug/L		150	500	500	5	MS	PRB	03/20/23 17:49	230320-1	2399662

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2399662	2399661	EPA 200.2	50	mL	50	mL	03/18/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614613 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614613003 **BASIS:** As Received **DATE COLLECTED** 14-MAR-23

CLIENT ID: MW-FGD-03-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 15-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	11.3	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/19/23 22:17	230319-2	2399662
7440-70-2	Calcium	7020	ug/L		30.0	100	100	1	MS	PRB	03/19/23 22:17	230319-2	2399662

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2399662	2399661	EPA 200.2	50	mL	50	mL	03/18/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614613 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614613004 **BASIS:** As Received **DATE COLLECTED** 14-MAR-23

CLIENT ID: MW-FGD-04-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 15-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	20.0	ug/L	U	20.0	75.0	75.0	5	MS	PRB	03/20/23 17:51	230320-1	2399662
7440-70-2	Calcium	4890	ug/L		150	500	500	5	MS	PRB	03/20/23 17:51	230320-1	2399662

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2399662	2399661	EPA 200.2	50	mL	50	mL	03/18/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614613 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614613005 **BASIS:** As Received **DATE COLLECTED** 14-MAR-23 ✔

CLIENT ID: MW-FGD-05-2023Q1 ✔ **LEVEL:** Low **DATE RECEIVED:** 15-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	31.4	ug/L		4.00	15.0	15.0	1	MS	PRB	03/19/23 22:31	230319-2	2399662
7440-70-2	Calcium	25500	ug/L		30.0	100	100	1	MS	PRB	03/19/23 22:31	230319-2	2399662

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2399662	2399661	EPA 200.2	50	mL	50	mL	03/18/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614613 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614613006 AMR 4/3/23 **BASIS:** As Received **DATE COLLECTED** 13-MAR-23 ✔

CLIENT ID: DU-WAT-CCR-FGD-~~23101~~ 23102 ✔ **LEVEL:** Low **DATE RECEIVED:** 15-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	7.65	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/19/23 22:54	230319-2	2399662
7440-70-2	Calcium	1820	ug/L		30.0	100	100	1	MS	PRB	03/19/23 22:54	230319-2	2399662

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2399662	2399661	EPA 200.2	50	mL	50	mL	03/18/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614613 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614613007 **BASIS:** As Received **DATE COLLECTED** 13-MAR-23 ✔

CLIENT ID: AS-FGD-01-2023Q1 ✔ **LEVEL:** Low **DATE RECEIVED:** 15-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	4.78	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/19/23 22:58	230319-2	2399662
7440-70-2	Calcium	1170	ug/L		30.0	100	100	1	MS	PRB	03/19/23 22:58	230319-2	2399662

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2399662	2399661	EPA 200.2	50	mL	50	mL	03/18/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614613 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614613008 **BASIS:** As Received **DATE COLLECTED** 13-MAR-23

CLIENT ID: AS-FGD-02-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 15-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	14.1	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/19/23 23:01	230319-2	2399662
7440-70-2	Calcium	2930	ug/L		30.0	100	100	1	MS	PRB	03/19/23 23:01	230319-2	2399662

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2399662	2399661	EPA 200.2	50	mL	50	mL	03/18/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614613 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614613009 **BASIS:** As Received **DATE COLLECTED** 13-MAR-23

CLIENT ID: AS-FGD-03-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 15-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	7.17	ug/L	J	4.00	15.0	15.0	1	MS	PRB	03/19/23 23:04	230319-2	2399662
7440-70-2	Calcium	1760	ug/L		30.0	100	100	1	MS	PRB	03/19/23 23:04	230319-2	2399662

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2399662	2399661	EPA 200.2	50	mL	50	mL	03/18/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 614613 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 614613010 **BASIS:** As Received **DATE COLLECTED** 14-MAR-23

CLIENT ID: FBLK-WAT-CCR-FGD-231 **LEVEL:** Low **DATE RECEIVED:** 15-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	03/19/23 23:08	230319-2	2399662
7440-70-2	Calcium	30.0	ug/L	U	30.0	100	100	1	MS	PRB	03/19/23 23:08	230319-2	2399662

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2399662	2399661	EPA 200.2	50	mL	50	mL	03/18/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

Quality Control Summary

METALS
-2a-
Initial and Continuing Calibration Verification

SDG No: 614613

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	98.7	ug/L	100	ug/L	98.7	90.0 - 110.0	MS	19-MAR-23 21:30	230319-2
	Calcium	5150	ug/L	5000	ug/L	103	90.0 - 110.0	MS	19-MAR-23 21:30	230319-2
	Boron	99	ug/L	100	ug/L	99	90.0 - 110.0	MS	20-MAR-23 15:16	230320-1
	Calcium	5000	ug/L	5000	ug/L	100	90.0 - 110.0	MS	20-MAR-23 15:16	230320-1
CCV01										
	Boron	95.7	ug/L	100	ug/L	95.7	90.0 - 110.0	MS	19-MAR-23 21:47	230319-2
	Calcium	5070	ug/L	5000	ug/L	101.4	90.0 - 110.0	MS	19-MAR-23 21:47	230319-2
	Boron	93.5	ug/L	100	ug/L	93.5	90.0 - 110.0	MS	20-MAR-23 15:26	230320-1
	Calcium	5050	ug/L	5000	ug/L	101.1	90.0 - 110.0	MS	20-MAR-23 15:26	230320-1
CCV02										
	Boron	95.8	ug/L	100	ug/L	95.8	90.0 - 110.0	MS	19-MAR-23 21:57	230319-2
	Calcium	5180	ug/L	5000	ug/L	103.6	90.0 - 110.0	MS	19-MAR-23 21:57	230319-2
	Boron	93.6	ug/L	100	ug/L	93.6	90.0 - 110.0	MS	20-MAR-23 15:32	230320-1
	Calcium	5100	ug/L	5000	ug/L	102	90.0 - 110.0	MS	20-MAR-23 15:32	230320-1
CCV03										
	Boron	92.7	ug/L	100	ug/L	92.7	90.0 - 110.0	MS	19-MAR-23 22:24	230319-2
	Calcium	5190	ug/L	5000	ug/L	103.7	90.0 - 110.0	MS	19-MAR-23 22:24	230319-2
	Boron	101	ug/L	100	ug/L	100.6	90.0 - 110.0	MS	20-MAR-23 17:44	230320-1
	Calcium	5000	ug/L	5000	ug/L	100.1	90.0 - 110.0	MS	20-MAR-23 17:44	230320-1
CCV04										
	Boron	95.2	ug/L	100	ug/L	95.2	90.0 - 110.0	MS	19-MAR-23 22:48	230319-2
	Calcium	5150	ug/L	5000	ug/L	103.1	90.0 - 110.0	MS	19-MAR-23 22:48	230319-2
	Boron	101	ug/L	100	ug/L	100.5	90.0 - 110.0	MS	20-MAR-23 17:59	230320-1
	Calcium	5070	ug/L	5000	ug/L	101.4	90.0 - 110.0	MS	20-MAR-23 17:59	230320-1
CCV05										
	Boron	94.3	ug/L	100	ug/L	94.3	90.0 - 110.0	MS	19-MAR-23 23:21	230319-2
	Calcium	5130	ug/L	5000	ug/L	102.7	90.0 - 110.0	MS	19-MAR-23 23:21	230319-2

***Analytical Methods:**

MS EPA 200.8 SC_NPDES

EPA

METALS
-2b-
CRDL Standard for ICP & ICPMS

SDG No: 614613

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	14.4	ug/L	15	ug/L	96.1	70.0 - 130.0	MS	19-MAR-23 21:37	230319-2
	Calcium	242	ug/L	200	ug/L	121.2	70.0 - 130.0	MS	19-MAR-23 21:37	230319-2
	Boron	13.5	ug/L	15	ug/L	89.7	70.0 - 130.0	MS	20-MAR-23 15:20	230320-1
	Calcium	243	ug/L	200	ug/L	121.5	70.0 - 130.0	MS	20-MAR-23 15:20	230320-1
CRDL02										
	Calcium	232	ug/L	200	ug/L	115.9	70.0 - 130.0	MS	19-MAR-23 23:11	230319-2
	Boron	11.8	ug/L	15	ug/L	78.8	70.0 - 130.0	MS	19-MAR-23 23:11	230319-2
	Boron	12.2	ug/L	15	ug/L	81.4	70.0 - 130.0	MS	20-MAR-23 17:38	230320-1
	Calcium	236	ug/L	200	ug/L	118.2	70.0 - 130.0	MS	20-MAR-23 17:38	230320-1
CRDL03										
	Boron	13.1	ug/L	15	ug/L	87.2	70.0 - 130.0	MS	20-MAR-23 17:53	230320-1
	Calcium	235	ug/L	200	ug/L	117.3	70.0 - 130.0	MS	20-MAR-23 17:53	230320-1

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

Metals
-3a-
Initial and Continuing Calibration Blank Summary

SDG No.: 614613

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	19-MAR-23 21:33	230319-2
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	19-MAR-23 21:33	230319-2
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	20-MAR-23 15:18	230320-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	20-MAR-23 15:18	230320-1
CCB01										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	19-MAR-23 21:50	230319-2
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	19-MAR-23 21:50	230319-2
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	20-MAR-23 15:28	230320-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	20-MAR-23 15:28	230320-1
CCB02										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	19-MAR-23 22:00	230319-2
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	19-MAR-23 22:00	230319-2
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	20-MAR-23 15:34	230320-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	20-MAR-23 15:34	230320-1
CCB03										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	19-MAR-23 22:27	230319-2
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	19-MAR-23 22:27	230319-2
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	20-MAR-23 17:46	230320-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	20-MAR-23 17:46	230320-1
CCB04										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	19-MAR-23 22:51	230319-2
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	19-MAR-23 22:51	230319-2
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	20-MAR-23 18:01	230320-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	20-MAR-23 18:01	230320-1
CCB05										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	19-MAR-23 23:25	230319-2
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	19-MAR-23 23:25	230319-2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

EPA

METALS
-3b-
PREPARATION BLANK SUMMARY

SDG NO. 614613
Contract: DMNN00101
Matrix: GW

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1205347859								
	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: 614613

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									
	Calcium	95400	ug/L	100000	ug/L	95.4	80.0 - 120.0	20-MAR-23 15:22	230320-1
	Boron	2.07	ug/L					20-MAR-23 15:22	230320-1
ICSAB01									
	Calcium	96100	ug/L	100000	ug/L	96.1	80.0 - 120.0	20-MAR-23 15:24	230320-1
	Boron	19.9	ug/L	22.06	ug/L	90.3	80.0 - 120.0	20-MAR-23 15:24	230320-1
ICSA02									
	Calcium	95400	ug/L	100000	ug/L	95.4	80.0 - 120.0	20-MAR-23 15:46	230320-1
	Boron	1.29	ug/L					20-MAR-23 15:46	230320-1
ICSAB02									
	Calcium	95400	ug/L	100000	ug/L	95.4	80.0 - 120.0	20-MAR-23 15:48	230320-1
	Boron	20.6	ug/L	22.06	ug/L	93.6	80.0 - 120.0	20-MAR-23 15:48	230320-1
ICSA03									
	Calcium	94800	ug/L	100000	ug/L	94.8	80.0 - 120.0	20-MAR-23 16:46	230320-1
	Boron	-0.005	ug/L					20-MAR-23 16:46	230320-1
ICSAB03									
	Calcium	95300	ug/L	100000	ug/L	95.3	80.0 - 120.0	20-MAR-23 16:48	230320-1
	Boron	18.5	ug/L	22.06	ug/L	83.7	80.0 - 120.0	20-MAR-23 16:48	230320-1
ICSA04									
	Calcium	95700	ug/L	100000	ug/L	95.7	80.0 - 120.0	20-MAR-23 17:08	230320-1
	Boron	0.025	ug/L					20-MAR-23 17:08	230320-1
ICSAB04									
	Calcium	94700	ug/L	100000	ug/L	94.7	80.0 - 120.0	20-MAR-23 17:10	230320-1
	Boron	17.4	ug/L	22.06	ug/L	79.1	80.0 - 120.0	20-MAR-23 17:10	230320-1
ICSA05									
	Calcium	95100	ug/L	100000	ug/L	95.1	80.0 - 120.0	20-MAR-23 17:20	230320-1
	Boron	4.39	ug/L					20-MAR-23 17:20	230320-1
ICSAB05									
	Calcium	95400	ug/L	100000	ug/L	95.4	80.0 - 120.0	20-MAR-23 17:22	230320-1

EPA

METALS
-4-
Interference Check Sample

SDG No: 614613

Contract: DMNN00101 **Lab Code:** GEL

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	Analysis Date/Time	Run Number
	Boron	21.8	ug/L	22.06	ug/L	99	80.0 - 120.0	20-MAR-23 17:22	230320-1
ICSA06									
	Calcium	94300	ug/L	100000	ug/L	94.3	80.0 - 120.0	20-MAR-23 17:40	230320-1
	Boron	0.053	ug/L					20-MAR-23 17:40	230320-1
ICSAB06									
	Calcium	96000	ug/L	100000	ug/L	96	80.0 - 120.0	20-MAR-23 17:42	230320-1
	Boron	19.4	ug/L	22.06	ug/L	88	80.0 - 120.0	20-MAR-23 17:42	230320-1
ICSA07									
	Calcium	95200	ug/L	100000	ug/L	95.2	80.0 - 120.0	20-MAR-23 17:55	230320-1
	Boron	-0.069	ug/L					20-MAR-23 17:55	230320-1
ICSAB07									
	Calcium	94600	ug/L	100000	ug/L	94.6	80.0 - 120.0	20-MAR-23 17:57	230320-1
	Boron	20.4	ug/L	22.06	ug/L	92.3	80.0 - 120.0	20-MAR-23 17:57	230320-1

METALS
-4-
Interference Check Sample

SDG No: 614613

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									
	Calcium	95800	ug/L	100000	ug/L	95.8	80.0 - 120.0	19-MAR-23 21:40	230319-2
	Boron	3.11	ug/L					19-MAR-23 21:40	230319-2
ICSAB01									
	Calcium	97100	ug/L	100000	ug/L	97.1	80.0 - 120.0	19-MAR-23 21:44	230319-2
	Boron	22.3	ug/L	22.06	ug/L	101	80.0 - 120.0	19-MAR-23 21:44	230319-2
ICSA02									
	Calcium	96400	ug/L	100000	ug/L	96.4	80.0 - 120.0	19-MAR-23 23:15	230319-2
	Boron	1.37	ug/L					19-MAR-23 23:15	230319-2
ICSAB02									
	Calcium	97300	ug/L	100000	ug/L	97.3	80.0 - 120.0	19-MAR-23 23:18	230319-2
	Boron	19.6	ug/L	22.06	ug/L	88.7	80.0 - 120.0	19-MAR-23 23:18	230319-2

METALS
-5a-

Matrix Spike Summary

SDG NO. 614613 **Client ID:** MW-FGD-05-2023Q1S

Contract: DMNN00101 **Level:** Low

Matrix: GROUND WATER **% Solids:**

Sample ID: 614613005 **Spike ID:** 1205347862

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Boron	ug/L	75-125	125		31.4		100	93.5		MS
Calcium	ug/L		27700		25500		2000	113	N/A	MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

Metals
-6-
Duplicate Sample Summary

SDG No.: 614613 **Lab Code:** GEL

Contract: DMNN00101 **Client ID:** MW-FGD-05-2023Q1D

Matrix: GROUND WATER **Level:** Low

Sample ID: 614613005 **Duplicate ID:** 1205347861 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Boron	ug/L	+/-30	31.4		32.2		2.47		MS
Calcium	ug/L	+/-20% ✔	25500		26400		3.61	✔	MS

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

METALS
-7-
Laboratory Control Sample Summary

SDG NO. 614613

Contract: DMNN00101

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1205347860								
	Boron	ug/L	100	88.0		88	85-115	MS
	Calcium	ug/L	2000	2060		103	85-115	MS

✔

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-9-
Serial Dilution Sample Summary

SDG NO. 614613 **Client ID:** MW-FGD-05-2023Q1L

Contract: DMNN00101

Matrix: LIQUID **Level:** Low

Sample ID: 614613005 **Serial Dilution ID:** 1205347863

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Boron	31.4		35	B	11.571			MS
Calcium	25500		25100		1.24		10	MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-13-
SAMPLE PREPARATION SUMMARY

SDG No: 614613 **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	2399661						
1205347859	MB for batch 2399661	MB	G	18-MAR-23	50mL	50mL	
1205347860	LCS for batch 2399661	LCS	G	18-MAR-23	50mL	50mL	
1205347862	MW-FGD-05-2023Q1S	MS	G	18-MAR-23	50mL	50mL	
1205347861	MW-FGD-05-2023Q1D	DUP	G	18-MAR-23	50mL	50mL	
614613001	MW-FGD-01-2023Q1	SAMPLE	G	18-MAR-23	50mL	50mL	
614613002	MW-FGD-02-2023Q1	SAMPLE	G	18-MAR-23	50mL	50mL	
614613003	MW-FGD-03-2023Q1	SAMPLE	G	18-MAR-23	50mL	50mL	
614613004	MW-FGD-04-2023Q1	SAMPLE	G	18-MAR-23	50mL	50mL	
614613005	MW-FGD-05-2023Q1	SAMPLE	G	18-MAR-23	50mL	50mL	
614613006	DU-WAT-CCR-FGD-~~23101~~ 23102 AMR 4/3/23	SAMPLE	G	18-MAR-23	50mL	50mL	
614613007	AS-FGD-01-2023Q1	SAMPLE	G	18-MAR-23	50mL	50mL	
614613008	AS-FGD-02-2023Q1	SAMPLE	G	18-MAR-23	50mL	50mL	
614613009	AS-FGD-03-2023Q1	SAMPLE	G	18-MAR-23	50mL	50mL	
614613010	FBLK-WAT-CCR-FGD-23101	SAMPLE	G	18-MAR-23	50mL	50mL	

EPA

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
Dominion Energy
SDG #: 614613

Product: **Ion Chromatography**
Analytical Method: EPA 300.0
Analytical Procedure: GL-GC-E-086 REV# 30
Analytical Batch: 2400563

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

GEL Sample ID#	Client Sample Identification
614613001	MW-FGD-01-2023Q1
614613002	MW-FGD-02-2023Q1
614613003	MW-FGD-03-2023Q1
614613004	MW-FGD-04-2023Q1
614613005	MW-FGD-05-2023Q1
614613006	DU-WAT-CCR-FGD-~~23101~~ 23102 AMR 4/3/23
614613007	AS-FGD-01-2023Q1
614613008	AS-FGD-02-2023Q1
614613009	AS-FGD-03-2023Q1
614613010	FBLK-WAT-CCR-FGD-23101
1205349696	Method Blank (MB)
1205349697	Laboratory Control Sample (LCS)
1205349698	614613005(MW-FGD-05-2023Q1) Sample Duplicate (DUP)
1205349699	614613005(MW-FGD-05-2023Q1) Post Spike (PS)
1205349700	614765002(MW-BG-74-2023Q1-3) Sample Duplicate (DUP)
1205349701	614765002(MW-BG-74-2023Q1-3) Post Spike (PS)

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

Data Summary:

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

Technical Information

Sample Dilutions
The following samples 1205349698 (MW-FGD-05-2023Q1DUP), 1205349699 (MW-FGD-05-2023Q1PS), 614613001 (MW-FGD-01-2023Q1), 614613003 (MW-FGD-03-2023Q1), 614613004 (MW-FGD-04-2023Q1), 614613005 (MW-FGD-05-2023Q1), 614613006 (DU-WAT-CCR-FGD-23101) and 614613009 (AS-FGD-03-2023Q1) 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	614613					
	001	**003**	**004**	**005**	**006**	**009**
Chloride	2X	1X	5X	5X	2X	2X
Sulfate	1X	2X	1X	5X	1X	1X

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: 2400151

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

GEL Sample ID#	Client Sample Identification
614613001	MW-FGD-01-2023Q1
614613002	MW-FGD-02-2023Q1
614613003	MW-FGD-03-2023Q1
614613004	MW-FGD-04-2023Q1
614613005	MW-FGD-05-2023Q1
614613006	DU-WAT-CCR-FGD-~~23101~~ 23102 AMR 4/3/23
614613007	AS-FGD-01-2023Q1
614613008	AS-FGD-02-2023Q1
614613009	AS-FGD-03-2023Q1
614613010	FBLK-WAT-CCR-FGD-23101
1205348939	Method Blank (MB)
1205348940	Laboratory Control Sample (LCS)
1205348941	614613005(MW-FGD-05-2023Q1) Sample Duplicate (DUP)
1205348942	614765002(MW-BG-74-2023Q1-3) 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.

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: 614613 GEL Work Order: 614613

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: 28 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 28, 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-FGD-01-2023Q1	Project:	DMNN00101
Sample ID:	614613001	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	13-MAR-23 15:00		
Receive Date:	15-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"												
Fluoride	J	0.0672	0.0330	0.100	mg/L		1	HXC1	03/17/23	2238	2400563	1
Sulfate		0.962	0.133	0.400	mg/L		1					
Chloride		9.45	0.134	0.400	mg/L		2	HXC1	03/18/23	1508	2400563	2
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		14.0	2.38	10.0	mg/L			CH6	03/18/23	1211	2400151	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

GEL LABORATORIES LLC
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Certificate of Analysis

Report Date: March 28, 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-FGD-02-2023Q1
Sample ID: 614613002
Matrix: GW
Collect Date: 13-MAR-23 17:00
Receive Date: 15-MAR-23
Collector: Client

Project: DMNN00101
Client ID: DMNN001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		7.36	0.0670	0.200	mg/L		1	HXC1	03/17/23	2309	2400563	1
Fluoride	U	ND	0.0330	0.100	mg/L		1					
Sulfate		8.59	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		36.0	2.38	10.0	mg/L			CH6	03/18/23	1211	2400151	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
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Certificate of Analysis

Report Date: March 28, 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-FGD-03-2023Q1	Project:	DMNN00101
Sample ID:	614613003	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	14-MAR-23 10:52		
Receive Date:	15-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		6.59	0.0670	0.200	mg/L		1	HXC1	03/17/23	2339	2400563	1
Fluoride	J	0.0905	0.0330	0.100	mg/L		1					
Sulfate		25.8	0.266	0.800	mg/L		2	HXC1	03/18/23	1915	2400563	2
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		39.0	2.38	10.0	mg/L			CH6	03/1[illegible]	1211	2400151	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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2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 28, 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-FGD-04-2023Q1	Project:	DMNN00101
Sample ID:	614613004	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	14-MAR-23 10:29		
Receive Date:	15-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"												
Fluoride	J	0.0876	0.0330	0.100	mg/L		1	HXC1	03/18/23	0010	2400563	1
Sulfate		5.24	0.133	0.400	mg/L		1					
Chloride		20.2	0.335	1.00	mg/L		5	HXC1	03/18/23	1946	2400563	2
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		46.0	2.38	10.0	mg/L			CH6	03/18/23	1211	2400151	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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2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 28, 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-FGD-05-2023Q1	Project:	DMNN00101
Sample ID:	614613005	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	14-MAR-23 10:25		
Receive Date:	15-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		10.6	0.335	1.00	mg/L		5	HXC1	03/18/23	1610	2400563	1
Sulfate		22.1	0.665	2.00	mg/L		5					
Fluoride	J	0.0712	0.0330	0.100	mg/L		1	HXC1	03/18/23	0214	2400563	2
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		105	2.38	10.0	mg/L			CH6	03/18/23	1211	2400151	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

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

Certificate of Analysis

Report Date: March 28, 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-FGD-23101 23102
Sample ID: 614613006 AMR 4/3/23
Matrix: GW
Collect Date: 13-MAR-23 12:00 ✔
Receive Date: 15-MAR-23
Collector: Client

Project: DMNN00101
Client ID: DMNN001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		9.33	0.134	0.400	mg/L		2	HXC1	03/18/23	1743	2400563	1
Fluoride	J	0.0863	0.0330	0.100	mg/L		1	HXC1	03/18/23	0244	2400563	2
Sulfate		2.62	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	03/18/23	1211	2400151	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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2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 28, 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-FGD-01-2023Q1	Project:	DMNN00101
Sample ID:	614613007	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	13-MAR-23 14:20		
Receive Date:	15-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		8.54	0.0670	0.200	mg/L		1	HXC1	03/18/23	0315	2400563	1
Fluoride	U	ND	0.0330	0.100	mg/L		1					
Sulfate	J	0.326	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		26.0	2.38	10.0	mg/L			CH6	03/18/23	1211	2400151	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 28, 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-FGD-02-2023Q1	Project:	DMNN00101
Sample ID:	614613008	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	13-MAR-23 16:25		
Receive Date:	15-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		8.07	0.0670	0.200	mg/L		1	HXC1	03/18/23	0346	2400563	1
Fluoride	J	0.0657	0.0330	0.100	mg/L		1					
Sulfate		8.66	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		21.0	2.38	10.0	mg/L			CH6	03/18/23	1211	2400151	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 28, 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-FGD-03-2023Q1	Project:	DMNN00101
Sample ID:	614613009	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	13-MAR-23 16:05		
Receive Date:	15-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		9.31	0.134	0.400	mg/L		2	HXC1	03/18/23	1813	2400563	1
Fluoride	J	0.0621	0.0330	0.100	mg/L		1	HXC1	03/18/23	0417	2400563	2
Sulfate		2.59	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	03/18/23	1211	2400151	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

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

Certificate of Analysis

Report Date: March 28, 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-FGD-23101	Project:	DMNN00101
Sample ID:	614613010	Client ID:	DMNN001
Matrix:	AQ		
Collect Date:	14-MAR-23 10:35		
Receive Date:	15-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	J	0.197	5x=0.985	0.0670	0.200	mg/L		1	HXC1	03/18/23	0448	2400563	1
Fluoride	U	ND	all>5x, no qual	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	03/18/23	1211	2400151	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 28, 2023

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

LCS=80-120%, MS/MSD=75-125%, RPD=20%

Contact: **Kelly Hicks**

Workorder: **614613**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 2400563										
QC1205349698 614613005 DUP										
Chloride		10.6		10.6	mg/L	0.0189		(0%-20%)	HXC1	03/18/23 16:41
Fluoride	J	0.0712	J	0.0700	mg/L	1.7 ^		(+/-0.100)		03/18/23 09:56
Sulfate		22.1		22.1	mg/L	0.36		(0%-20%)		03/18/23 16:41
QC1205349700 614765002 DUP										
Chloride		4.13		4.13	mg/L	0.00484		(0%-20%)		03/18/23 10:58
Fluoride	J	0.0971		0.184	mg/L	61.7 ^		(+/-0.100)		
Sulfate		4.75		4.74	mg/L	0.394		(0%-20%)		
QC1205349697 LCS										
Chloride	5.00			4.85	mg/L		97.1	(90%-110%)		03/18/23 09:25
Fluoride	2.50			2.51	mg/L		100	(90%-110%)		
Sulfate	10.0			9.87	mg/L		98.7	(90%-110%)		
QC1205349696 MB										
Chloride			U	ND	mg/L					03/18/23 08:54
Fluoride			U	ND	mg/L					
Sulfate			U	ND	mg/L					
QC1205349699 614613005 PS										
Chloride	5.00	2.12		7.34	mg/L		105	(90%-110%)		03/18/23 17:12

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

QC Summary

Workorder: **614613**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 2400563											
Fluoride	2.50	J	0.0712		2.73	mg/L		106	(90%-110%)	HXC1	03/18/23 10:27
Sulfate	10.0		4.43		15.0	mg/L		105 ✔	(90%-110%)		03/18/23 17:12
QC1205349701 614765002 PS											
Chloride	5.00		4.13		9.59	mg/L		109	(90%-110%)		03/18/23 11:29
Fluoride	2.50	J	0.0971		2.63	mg/L		101	(90%-110%)		
Sulfate	10.0		4.75		15.2	mg/L		104 ✔	(90%-110%)		
Solids Analysis											
Batch 2400151											
QC1205348941 614613005 DUP											
Total Dissolved Solids			105		110	mg/L	4.65 ✔		(0%-5%)	CH6	03/18/23 12:11
QC1205348942 614765002 DUP Not this SDG, no eval											
Total Dissolved Solids			30.0		38.0	mg/L	23.5 ^		(+/-10.0)		03/18/23 12:11
QC1205348940 LCS											
Total Dissolved Solids	300				300	mg/L		100 ✔	(95%-105%)		03/18/23 12:11
QC1205348939 MB											
Total Dissolved Solids			✔	U	ND	mg/L					03/18/23 12:11

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: **614613**

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.

Page: 1 of 2
Project # 416559.0005.0000.4.2
GEL Quote #:
COC Number (1): Rev 1
PO Number: PO 50149867

GEL Laboratories LLC
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Chemistry | Radiochemistry | Radiobioassay | Specialty Analytics

Chain of Custody and Analytical Request

614613

GEL Work Order Number: 228223 **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 FGD 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	Cl, Fl, SO4 EPA 300.0	TDS - SM2540C	Total Metals See list in comments	NI	<-- Preservative Type (6)	Comments
MW-FGD-01-2023Q1	3-13-23	1500	N	N	GW	N		3	X	X	X			
MW-FGD-02-2023Q1	3-13-23	1700	N	N	GW	N		3	X	X	X			EPA 200.8 - B and Ca
MW-FGD-03-2023Q1	3-14-23	1052	N	N	GW	N		3	X	X	X			
MW-FGD-04-2023Q1	3-14-23	1029	N	N	GW	N		3	X	X	X			
MW-FGD-05-2023Q1 ms/msd	3-14-23	1025	N	N	GW	N		6	X	X	X			
DU-WAT-CCR-FGD-~~2310~~ 23102 RM	3-13-23	—	FD	N	GW	N		3	X	X	X			see attached work order for details

Note: extra sample is required for sample specific QC

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1		3-15-23	1205		3.15.23	1205
2		3/15/23	1540	Priyasha Tatini	3/15/23	1540
3				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.)*

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-AS-FGD-01	11:24	16.80		
WAT-AS-FGD-02	11:30	15.95		
WAT-MW-FGD-02	11:33	16.40		
WAT-MW-FGD-03	11:36	17.85		
WAT-MW-FGD-04	11:40	15.95		
WAT-MW-FGD-05	11:42	15.87		
WAT-AS-FGD-03	11:45	14.93		
WAT-MW-FGD-06	11:49	16.90		
MW-AP-01A	11:53	14.64		
WAT-MW-FGD-01	11:59	24.74		
WAT-AS-LF-03	12:10	27.63		
WAT-MW-LF-11	13:18	22.17		
WAT-MW-LF-10A	13:20	20.38		
WAT-MW-22	13:11	17.95		

WATER SAMPLE LOG: AS-FGD-01-2023Q4
WATEREE GENERATING STATION

PREPARED BY	CHECKED BY
BY: Sam Thorsland DATE: 2023-10-11	BY: Jason Yonts DATE: 2023-10-20

WELL ID: WAT-AS-FGD-01		
TASK CODE: WAT-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 16.78	TOTAL DEPTH TO WATER (FT): 25.88	TOTAL WATER COLUMN (FT): 9.1
TOP OF SCREEN (FT): 15.88	BOTTOM OF SCREEN (FT): 25.88	METHOD OF PURGING: Low Flow
PUMP TYPE: Peristaltic	PUMP START TIME: 08:24	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
08:30	150	4.34	57.95	193.8	5.94	0.77	21.76	16.86	
08:45	150	4.33	56.87	189.3	5.58	1.23	22.74	16.9	
08:50	150	4.32	56.61	178.3	5.55	1.4	22.78	16.9	
08:55	150	4.34	56.78	174.5	5.55	1.26	22.71	16.9	
09:00	150	4.3	56.71	172.5	5.56	0.84	22.71	16.9	

SAMPLE	
TIME: 09:00	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML): 5400	TIME POST SAMPLE: 09:11
WATER LEVEL POST-SAMPLE: 16.91	FLOW RATE POST-SAMPLE (ML/MIN): 150
TURBIDITY POST-SAMPLE (NTU): 0.37	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-FGD-23401	09:00
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	2	250	HDPE	HNO3
	2	250	HDPE	UNPRESERVED
	2	125	HDPE	UNPRESERVED

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

PREPARED BY	CHECKED BY
BY: Sam Thorsland DATE: 2023-10-11	BY: Jason Yonts DATE: 2023-10-20

WELL ID: WAT-MW-FGD-01		
TASK CODE: WAT-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 24.74	TOTAL DEPTH TO WATER (FT): 30.04	TOTAL WATER COLUMN (FT): 5.3
TOP OF SCREEN (FT): 20	BOTTOM OF SCREEN (FT): 30	METHOD OF PURGING: Low Flow
PUMP TYPE: Peristaltic	PUMP START TIME: 15:47	PUMP INTAKE DEPTH/SAMPLE DEPTH (FT): 27

PURGING	
METHOD: Low Flow	MEASURE POINT: Top of Casing
PUMP TYPE: Peristaltic	PUMP INTAKE/SAMPLE DEPTH (FT) : 27
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
15:55	120	4.49	56.47	154.7	3.87	3.63	22.38	24.74	
16:10	170	4.52	49.39	142.61	3.92	0.43	19.98	24.75	
16:15	170	4.54	48.58	141.3	4.04	0.49	19.77	24.75	
16:20	170	4.54	47.63	141.4	4.08	0.41	19.68	24.75	
16:25	170	4.54	47.23	142.1	4.09	0.45	19.68	24.75	

SAMPLE	
TIME: 16:25	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML): 6460	TIME POST SAMPLE: 16:59
WATER LEVEL POST-SAMPLE: 24.75	FLOW RATE POST-SAMPLE (ML/MIN): 170
TURBIDITY POST-SAMPLE (NTU): 0.16	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	2	250	HDPE	HNO3
	1	250	HDPE	UNPRESERVED
	1	125	HDPE	UNPRESERVED
410323000	1	2000	HDPE	HNO3

WATER SAMPLE LOG: MW-FGD-02-2023Q4
WATEREE GENERATING STATION

PREPARED BY	CHECKED BY
BY: Sam Thorsland DATE: 2023-10-11	BY: Jason Yonts DATE: 2023-10-20

WELL ID: WAT-MW-FGD-02		
TASK CODE: WAT-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 16.41	TOTAL DEPTH TO WATER (FT): 21.18	TOTAL WATER COLUMN (FT): 4.77
TOP OF SCREEN (FT): 11.18	BOTTOM OF SCREEN (FT): 21.18	METHOD OF PURGING: Low Flow
PUMP TYPE: Peristaltic	PUMP START TIME: 13:06	PUMP INTAKE DEPTH/SAMPLE DEPTH (FT): 18

PURGING	
METHOD: Low Flow	MEASURE POINT: Top of Casing
PUMP TYPE: Peristaltic	PUMP INTAKE/SAMPLE DEPTH (FT) : 18
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
13:10	80	4.52	66.4	177.2	2.88	3.93	24.95	16.41	
13:25	80	4.4	68.33	171.1	2.38	1.03	23.77	16.41	
13:30	80	4.48	68.2	173.4	2.37	0.96	23.61	16.41	
13:35	80	4.5	68.28	175.3	2.35	0.4	23.47	16.41	
13:40	80	4.48	68.6	179.4	2.37	0.33	23.43	16.41	

SAMPLE	
TIME: 13:40	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML): 2720	TIME POST SAMPLE: 13:51
WATER LEVEL POST-SAMPLE: 16.41	FLOW RATE POST-SAMPLE (ML/MIN): 80
TURBIDITY POST-SAMPLE (NTU): 0.3	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-FGD-03-2023Q4
WATEREE GENERATING STATION

PREPARED BY	CHECKED BY
BY: Sam Thorsland DATE: 2023-10-11	BY: Jason Yonts DATE: 2023-10-20

WELL ID: WAT-MW-FGD-03		
TASK CODE: WAT-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 17.87	TOTAL DEPTH TO WATER (FT): 20.8	TOTAL WATER COLUMN (FT): 2.93
TOP OF SCREEN (FT): 10.8	BOTTOM OF SCREEN (FT): 20.8	METHOD OF PURGING: Low Flow
PUMP TYPE: Peristaltic	PUMP START TIME: 11:36	PUMP INTAKE DEPTH/SAMPLE DEPTH (FT): 18

PURGING	
METHOD: Low Flow	MEASURE POINT: Top of Casing
PUMP TYPE: Peristaltic	PUMP INTAKE/SAMPLE DEPTH (FT) : 18
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
11:40	80	4.89	167.1	196.9	3.96	37.5	24.08	17.99	
11:55	80	4.9	164.4	171.5	3.46	28.2	23.21	18.66	
12:00	50	4.94	138.87	171.7	3.59	22.5	23.47	18.55	
12:05	50	4.95	136.42	170	3.57	15.3	23.65	18.58	
12:10	50	4.96	131.01	168.1	3.61	11.7	23.56	18.6	
12:15	50	4.98	128.99	167.2	3.62	9.94	23.6	18.62	
12:20	50	4.98	123.22	166.1	3.66	7.88	23.74	18.64	
12:25	50	4.97	119.93	165.8	3.73	4.89	23.85	18.66	
12:30	50	4.97	116.98	166	3.71	4.86	24	18.68	
12:35	50	4.99	114.32	165.1	3.84	4.35	23.91	18.71	

SAMPLE	
TIME: 12:35	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML): 2950	TIME POST SAMPLE: 12:58
WATER LEVEL POST-SAMPLE: 18.55	FLOW RATE POST-SAMPLE (ML/MIN): 50
TURBIDITY POST-SAMPLE (NTU): 1.94	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-FGD-24301	12:45	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-FGD-04-2023Q4
WATEREE GENERATING STATION

PREPARED BY	CHECKED BY
BY: Sam Thorsland DATE: 2023-10-11	BY: Jason Yonts DATE: 2023-10-20

WELL ID: WAT-MW-FGD-04		
TASK CODE: WAT-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 15.93	TOTAL DEPTH TO WATER (FT): 21.35	TOTAL WATER COLUMN (FT): 5.42
TOP OF SCREEN (FT): 11.35	BOTTOM OF SCREEN (FT): 21.35	METHOD OF PURGING: Low Flow
PUMP TYPE: Peristaltic	PUMP START TIME: 10:34	PUMP INTAKE DEPTH/SAMPLE DEPTH (FT): 17

PURGING	
METHOD: Low Flow	MEASURE POINT: Top of Casing
PUMP TYPE: Peristaltic	PUMP INTAKE/SAMPLE DEPTH (FT) : 17
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
10:40	80	4.3	61.84	363.8	2.65	38	24.15	15.95	
10:55	80	4.28	57.31	240.4	2.83	1.88	23.69	15.95	
11:00	80	4.27	59.33	228.8	2.71	1.4	23.6	15.95	
11:05	80	4.26	63.2	221.1	2.57	1.25	23.51	15.95	
11:10	80	4.26	64.9	215.1	2.45	0.8	23.5	15.95	
11:15	80	4.25	65.89	211.1	2.33	0.75	23.55	15.95	

SAMPLE	
TIME: 11:15	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML): 3280	TIME POST SAMPLE: 11:31
WATER LEVEL POST-SAMPLE: 15.95	FLOW RATE POST-SAMPLE (ML/MIN): 80
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	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-FGD-05-2023Q4
WATEREE GENERATING STATION

PREPARED BY	CHECKED BY
BY: Sam Thorsland DATE: 2023-10-11	BY: Jason Yonts DATE: 2023-10-20

WELL ID: WAT-MW-FGD-05		
TASK CODE: WAT-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 15.85	TOTAL DEPTH TO WATER (FT): 19.2	TOTAL WATER COLUMN (FT): 3.35
TOP OF SCREEN (FT): 9.2	BOTTOM OF SCREEN (FT): 19.2	METHOD OF PURGING: Low Flow
PUMP TYPE: Peristaltic	PUMP START TIME: 09:24	PUMP INTAKE DEPTH/SAMPLE DEPTH (FT): 17

PURGING	
METHOD: Low Flow	MEASURE POINT: Top of Casing
PUMP TYPE: Peristaltic	PUMP INTAKE/SAMPLE DEPTH (FT) : 17
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
09:30	150	5.52	240.09	322.8	1.2	66.8	22.17	15.95	
09:45	150	5.2	179.92	609.2	1.99	0.59	23.97	16.27	
09:50	150	5.22	178.57	607.3	1.94	0.38	24.06	16.37	
09:55	150	5.25	183.28	603.4	1.85	0.31	24.15	16.44	
10:00	150	5.27	186.43	600.7	1.76	0.25	24.14	16.52	

SAMPLE	
TIME: 10:00	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML): 5400	TIME POST SAMPLE: 10:29
WATER LEVEL POST-SAMPLE: 17.51	FLOW RATE POST-SAMPLE (ML/MIN): 150
TURBIDITY POST-SAMPLE (NTU): 2.96	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-FGD-06-2023Q4
WATEREE GENERATING STATION

PREPARED BY	CHECKED BY
BY: Sam Thorsland DATE: 2023-10-11	BY: Jason Yonts DATE: 2023-10-20

WELL ID: WAT-MW-FGD-06		
TASK CODE: WAT-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 16.9	TOTAL DEPTH TO WATER (FT): 28.15	TOTAL WATER COLUMN (FT): 11.25
TOP OF SCREEN (FT): 18.15	BOTTOM OF SCREEN (FT): 28.15	METHOD OF PURGING: Low Flow
PUMP TYPE: Peristaltic	PUMP START TIME: 14:00	PUMP INTAKE DEPTH/SAMPLE DEPTH (FT): 23

PURGING	
METHOD: Low Flow	MEASURE POINT: Top of Casing
PUMP TYPE: Peristaltic	PUMP INTAKE/SAMPLE DEPTH (FT) : 23
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
14:05	80	5.09	73.21	158.3	5.18	29	24.44	17.23	
14:20	40	5.06	75.44	149.9	4.45	10.08	23.79	18.33	
14:30	40	5.07	76.11	149	4.41	7.06	24.33	18.4	
14:40	40	5.07	76.01	146.9	4.38	4.83	24.14	18.46	
14:45	40	5.08	75.28	145.7	4.43	4.78	24.03	18.5	
14:50	40	5.07	75.09	146	4.56	4.7	24.3	18.54	

SAMPLE	
TIME: 14:50	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML): 2000	TIME POST SAMPLE: 15:21
WATER LEVEL POST-SAMPLE: 18.69	FLOW RATE POST-SAMPLE (ML/MIN): 40
TURBIDITY POST-SAMPLE (NTU): 3.45	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	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

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:	10/11/23

PH CALIBRATION CHECK

pH 7 (LOT #): 22290139 (EXP. DATE): 4/24 PRE-CAL. READING / STANDARD	pH 4 / 10 (LOT #): 24000044 / 22110130 (EXP. DATE): 5/24 / 4/2024 PRE-CAL. READING / STANDARD	CAL. RANGE	TIME
6.15 / 7.0	9.32 / 10	☐ WITHIN RANGE	0802
7.0 / 7.0	10 / 10	☒ WITHIN RANGE	0804
/	3.27 / 4	☐ WITHIN RANGE	0806
/	4 / 4	☒ WITHIN RANGE	0808

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): 24002258 (EXP. DATE): 5/24 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
4487 / 4490	22.68	☒ WITHIN RANGE	0812
/		☐ 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
231 / 228	22.68	☒ WITHIN RANGE	0810
~~228~~ /		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CALIBRATION READING (mg/L)	CAL. RANGE	TIME
Baro: 758.39 mmHg Temp: 20.41°C Act: 8.22 mg/L Cal: 9.1 mg/L	☒ WITHIN RANGE	0814
	☐ 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	0816
1 / 1	1 / 1	☒ WITHIN RANGE	0818
10 / 10	10 / 10	☒ WITHIN RANGE	0820
/	/	☐ 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 _____ DATE 10/12/23

CHECKED BY _____ DATE 10/12/23

REVISED 06/2011

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	Wateree Station	MODEL:	Aqua Troll 400	SAMPLER:	ST / DS
PROJECT NO.:	416559.0005.0000	SERIAL #:	851425	DATE:	10/11/23

PH CALIBRATION CHECK

pH 7 (LOT #): 221901 39 (EXP. DATE): 4/24 PRE-CAL. READING / STANDARD	pH 4 / (10) (LOT #): 2211030 (EXP. DATE): 4/24 PRE-CAL. READING / STANDARD	CAL. RANGE	TIME
6.78 / 7.00	9.97 / 10.00	☐ WITHIN RANGE	0801
/	4.34 / 4.00	☐ WITHIN RANGE	0804
7.02 / 7.00	10.02 / 10.00	☒ WITHIN RANGE	0803
/	4.00 / 4.00	☒ WITHIN RANGE	0808

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): 24000044 (EXP. DATE): 5/24 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
4526.5 / 4490	21.02	☐ WITHIN RANGE	0807
4484.4 / 4490	21.05	☒ WITHIN RANGE	0808
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

ORP CALIBRATION CHECK

CAL. READING (LOT #): 24002258 (EXP. DATE): 6/24 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
230.9 / 228	20.97	☐ WITHIN RANGE	0809
228.0 / 228	20.97	☒ WITHIN RANGE	0810
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CALIBRATION READING (mg/L)	CAL. RANGE	TIME
Baro: 757.55 mmHg Temp: 18.88 °C Act: 9.27 mg/L Calc: 930 mg/L	☒ WITHIN RANGE	0757
	☐ 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	0811
0.89 / 1.00	1.00 / 1.00	☒ WITHIN RANGE	0811
11.20 / 10.00	9.99 / 10.00	☒ WITHIN RANGE	0812
/	/	☐ 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

Russell T McLeod 10/11/23
SIGNED DATE

Jacob Bradley 10/12/23
CHECKED BY DATE

ENVIRONMENTAL® STANDARDS
Montrose Environmental Group

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:

640960

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-FGD-01-2023Q4	MW-FGD-01	N	EPA 200.8	Boron	T	7.30	J	RL	4.00	15.0		ug/L
MW-FGD-01-2023Q4	MW-FGD-01	N	SM 2540C	Total Dissolved Solids	N	3.00	J	RL	2.38	10.0		mg/L
MW-FGD-02-2023Q4	MW-FGD-02	N	EPA 300.0	Fluoride	N	0.0361	J	RL	0.0330	0.100		mg/L
MW-FGD-02-2023Q4	MW-FGD-02	N	SM 2540C	Total Dissolved Solids	N	6.00	J	RL	2.38	10.0		mg/L
MW-FGD-03-2023Q4	MW-FGD-03	N	EPA 200.8	Boron	T	14.8	J	RL	4.00	15.0		ug/L
MW-FGD-03-2023Q4	MW-FGD-03	N	EPA 300.0	Fluoride	N	0.0369	J	RL	0.0330	0.100		mg/L
MW-FGD-04-2023Q4	MW-FGD-04	N	SM 2540C	Total Dissolved Solids	N	8.00	J	RL	2.38	10.0		mg/L
MW-FGD-06-2023Q4	MW-FGD-06	N	EPA 200.8	Boron	T	10.4	J	RL	4.00	15.0		ug/L
AS-FGD-01-2023Q4	AS-FGD-01	N	EPA 200.8	Boron	T	8.29	J	RL	4.00	15.0		ug/L
AS-FGD-01-2023Q4	AS-FGD-01	N	SM 2540C	Total Dissolved Solids	N		UJ	FD	2.38	10.0		mg/L
FBLK-WAT-CCR-FGD-23401	Field Blank	FB	EPA 300.0	Chloride	N	0.173	J	RL	0.0670	0.200		mg/L
DU-WAT-CCR-FGD-23401	AS-FGD-01	FD	EPA 200.8	Boron	T	8.32	J	RL	4.00	15.0		ug/L
DU-WAT-CCR-FGD-23401	AS-FGD-01	FD	SM 2540C	Total Dissolved Solids	N	23.0	J	FD	2.38	10.0		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: 640960

Lab Sample ID	640960001
Sys Sample Code	MW-FGD-01-2023Q4
Sample Name	MW-FGD-01-2023Q4
Sample Date	10/11/2023 4:25:00 PM
Location	WAT-MW-FGD-01 / MW-FGD-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	7.30	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	928				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	6.56				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	2.14				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	3.00	J	RL		2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	640960002
Sys Sample Code	MW-FGD-02-2023Q4
Sample Name	MW-FGD-02-2023Q4
Sample Date	10/11/2023 1:40:00 PM
Location	WAT-MW-FGD-02 / MW-FGD-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	43.8				4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	2090				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	7.13				0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L	0.0361	J	RL		0.0330	0.0330	0.100	Y	Yes	1	NA
	Sulfate	14808-79-8	N	mg/L	10.5				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	6.00	J	RL		2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	640960003
Sys Sample Code	MW-FGD-03-2023Q4
Sample Name	MW-FGD-03-2023Q4
Sample Date	10/11/2023 12:35:00 PM
Location	WAT-MW-FGD-03 / MW-FGD-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	14.8	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	6870				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	6.60				0.0670	0.0670	0.200	Y	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L	0.0369	J	RL		0.0330	0.0330	0.100	Y	Yes	1	NA
EPA 300.0	Sulfate	14808-79-8	N	mg/L	26.0				0.665	0.665	2.00	Y	Yes	5	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	51.0				2.38	2.38	10.0	Y	Yes	1	NA

Facility: Wateree Generating Station
SDG: 640960

Lab Sample ID	640960004
Sys Sample Code	MW-FGD-04-2023Q4
Sample Name	MW-FGD-04-2023Q4
Sample Date	10/11/2023 11:15:00 AM
Location	WAT-MW-FGD-04 / MW-FGD-04
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	15.0				4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	2980				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	7.00				0.133	0.133	0.400	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	10.2				0.335	0.335	1.00	Y	Yes	5	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	8.00	J	RL		2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	640960005
Sys Sample Code	MW-FGD-05-2023Q4
Sample Name	MW-FGD-05-2023Q4
Sample Date	10/11/2023 10:00:00 AM
Location	WAT-MW-FGD-05 / MW-FGD-05
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	35.0				4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	18900				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
EPA 300.0	Chloride	16887-00-6	N	mg/L	13.4				0.670	0.670	2.00	Y	Yes	10	NA
	Sulfate	14808-79-8	N	mg/L	32.2				1.33	1.33	4.00	Y	Yes	10	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	100				2.38	2.38	10.0	Y	Yes	1	NA

Facility: Wateree Generating Station
SDG: 640960

Lab Sample ID	640960006
Sys Sample Code	MW-FGD-06-2023Q4
Sample Name	MW-FGD-06-2023Q4
Sample Date	10/11/2023 2:50:00 PM
Location	WAT-MW-FGD-06 / MW-FGD-06
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	10.4	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	1300				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	5.65				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	5.91				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	21.0				2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	640960007
Sys Sample Code	AS-FGD-01-2023Q4
Sample Name	AS-FGD-01-2023Q4
Sample Date	10/11/2023 9:00:00 AM
Location	WAT-AS-FGD-01 / AS-FGD-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	8.29	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	1050				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	7.51				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	1.01				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L		UJ	FD		2.38	2.38	10.0	N	Yes	1	NA

Lab Sample ID	640960008
Sys Sample Code	FBLK-WAT-CCR-FGD-23401
Sample Name	FBLK-WAT-CCR-FGD-23401
Sample Date	10/11/2023 12:45:00 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	0.173	J	RL		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	640960009
Sys Sample Code	DU-WAT-CCR-FGD-23401
Sample Name	DU-WAT-CCR-FGD-23401
Sample Date	10/11/2023 12:00:00 PM
Location	WAT-AS-FGD-01 / AS-FGD-01
Sample Type	FD
Matrix	GW
Parent Sample	AS-FGD-01-2023Q4

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	8.32	J	RL		4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	1050				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	7.45				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	0.868				0.133	0.133	0.400	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	23.0	J	FD		2.38	2.38	10.0	Y	Yes	1	NA

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: 640960

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: 2023101201
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: 640960

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. There are no additional comments concerning sample receipt.

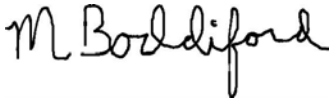
Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
640960001	MW-FGD-01-2023Q4
640960002	MW-FGD-02-2023Q4
640960003	MW-FGD-03-2023Q4
640960004	MW-FGD-04-2023Q4
640960005	MW-FGD-05-2023Q4
640960006	MW-FGD-06-2023Q4
640960007	AS-FGD-01-2023Q4
640960008	FBLK-WAT-CCR-FGD-23401
640960009	DU-WAT-CCR-FGD-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 55 of 59

SDG: 640960 Rev1

Page: 1 of 1
Project # 416559.0005.0000.4.2
GEL Quote #:
COC Number (1): 2023101201
PO Number: PO 50149867

GEL Laboratories LLC 640960
gel.com
Chemistry | Radiochemistry | Radiobioassay | Specialty Analytics

Chain of Custody and Analytical Request

GEL Work Order Number: 232268 **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 FGD 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-FGD-01-2023Q4	10/11/23	1625	N	N	GW	N		3	X	X	X			
MW-FGD-02-2023Q4	10/11/23	1340	N	N	GW	N		3	X	X	X			See attached work
MW-FGD-03-2023Q4	10/11/23	1235	N	N	GW	N		3	X	X	X			order for details
MW-FGD-04-2023Q4	10/11/23	1115	N	N	GW	N		3	X	X	X			
MW-FGD-05-2023Q4	10/11/23	1000	N	N	GW	N		3	X	X	X			
MW-FGD-06-2023Q4	10/11/23	1450	N	N	GW	N		6	X	X	X			
AS-FGD-01-2023Q4	10/11/23	0900	N	N	GW	N		3	X	X	X			
FBLK-WAT-CCR-FGD-23401	10/11/23	1245	FB	N	AQ	N		3	X	X	X			
DU-WAT-CCR-FGD-23401	10/11/23	—	FD	N	GW	N								

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	[signature]	10/12/23	9:43
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.)*

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-4F-12-20230Q4 pH 72 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 55 of 54

SDG: 640960

Page: 1 of 1
Project # 416559.0005.0000.4.2
GEL Quote #:
COC Number (1): 20231012 Rev 1
PO Number: PO 50149867

GEL Laboratories LLC

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Chemistry | Radiochemistry | Radiobioassay | Specialty Analytics

Chain of Custody and Analytical Request

C640960

GEL Work Order Number: 232268 **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 FGD 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 200.8	NI	<-- Preservative Type (6)	Comments
MW-FGD-01-2023Q4	10/11/23	1625	N	N	GW	N		3	X	X	X			
MW-FGD-02-2023Q4	10/11/23	1340	N	N	GW	N		3	X	X	X			See attached work
MW-FGD-03-2023Q4	10/11/23	1235	N	N	GW	N		3	X	X	X			order for details
MW-FGD-04-2023Q4	10/11/23	1115	N	N	GW	N		3	X	X	X			
MW-FGD-05-2023Q4	10/11/23	1000	N	N	GW	N		3	X	X	X			
MW-FGD-06-2023Q4	10/11/23	1450	N	N	GW	N		6	X	X	X			
AS-FGD-01-2023Q4	10/11/23	0900	N	N	GW	N		3	X	X	X			
FBLK-WAT-CCR-FGD-23401	10/11/23	1245	FB	N	AQ	N		3	X	X	X			
DU-WAT-CCR-FGD-23401	10/11/23	—	FD	N	GW	N								

RM 11-13-23

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	[signature]	10/12/23	9:43
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 #: 640960

Product: Determination of Metals by ICP-MS
Analytical Method: EPA 200.8 SC_NPDES
Analytical Procedure: GL-MA-E-014 REV# 36
Analytical Batch: 2527558

Preparation Method: EPA 200.2
Preparation Procedure: GL-MA-E-016 REV# 18
Preparation Batch: 2527557

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

GEL Sample ID#	Client Sample Identification
640960001	MW-FGD-01-2023Q4
640960002	MW-FGD-02-2023Q4
640960003	MW-FGD-03-2023Q4
640960004	MW-FGD-04-2023Q4
640960005	MW-FGD-05-2023Q4
640960006	MW-FGD-06-2023Q4
640960007	AS-FGD-01-2023Q4
640960008	FBLK-WAT-CCR-FGD-23401
640960009	DU-WAT-CCR-FGD-23401
1205578276	Method Blank (MB)**ICP-MS**
1205578277	Laboratory Control Sample (LCS)
1205578280	640960006(MW-FGD-06-2023Q4L) Serial Dilution (SD)
1205578278	640960006(MW-FGD-06-2023Q4D) Sample Duplicate (DUP)
1205578279	640960006(MW-FGD-06-2023Q4S) 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: 640960 GEL Work Order: 640960

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: 640960 **CONTRACT:** DMNN00102 **METHOD TYPE:** EPA

SAMPLE ID: 640960001 **LEVEL:** Low **DATE COLLECTED:** 11-OCT-23

CLIENT ID: MW-FGD-01-2023Q4 **%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	7.30	ug/L	J	4.00	15.0	15.0	1	MS	PRB	11/18/23 14:52	231118-1	2527558
7440-70-2	Calcium	928	ug/L		30.0	100	100	1	MS	PRB	11/18/23 14:52	231118-1	2527558

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2527558	2527557	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: 640960 **CONTRACT:** DMNN00102 **METHOD TYPE:** EPA

SAMPLE ID: 640960002 **LEVEL:** Low **DATE COLLECTED:** 11-OCT-23

CLIENT ID: MW-FGD-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	43.8	ug/L		4.00	15.0	15.0	1	MS	PRB	11/18/23 14:55	231118-1	2527558
7440-70-2	Calcium	2090	ug/L		30.0	100	100	1	MS	PRB	11/18/23 14:55	231118-1	2527558

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2527558	2527557	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: 640960 **CONTRACT:** DMNN00102 **METHOD TYPE:** EPA

SAMPLE ID: 640960003 **LEVEL:** Low **DATE COLLECTED:** 11-OCT-23

CLIENT ID: MW-FGD-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	14.8	ug/L	J	4.00	15.0	15.0	1	MS	PRB	11/18/23 14:59	231118-1	2527558
7440-70-2	Calcium	6870	ug/L		30.0	100	100	1	MS	PRB	11/18/23 14:59	231118-1	2527558

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2527558	2527557	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: 640960 **CONTRACT:** DMNN00102 **METHOD TYPE:** EPA

SAMPLE ID: 640960004 **LEVEL:** Low **DATE COLLECTED:** 11-OCT-23

CLIENT ID: MW-FGD-04-2023Q4 **%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	15.0	ug/L		4.00	15.0	15.0	1	MS	PRB	11/18/23 15:02	231118-1	2527558
7440-70-2	Calcium	2980	ug/L		30.0	100	100	1	MS	PRB	11/18/23 15:02	231118-1	2527558

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2527558	2527557	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: 640960 **CONTRACT:** DMNN00102 **METHOD TYPE:** EPA

SAMPLE ID: 640960005 **LEVEL:** Low **DATE COLLECTED:** 11-OCT-23

CLIENT ID: MW-FGD-05-2023Q4 **%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	35.0	ug/L		4.00	15.0	15.0	1	MS	PRB	11/18/23 15:06	231118-1	2527558
7440-70-2	Calcium	18900	ug/L		30.0	100	100	1	MS	PRB	11/18/23 15:06	231118-1	2527558

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2527558	2527557	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: 640960 **CONTRACT:** DMNN00102 **METHOD TYPE:** EPA

SAMPLE ID: 640960006 **LEVEL:** Low **DATE COLLECTED:** 11-OCT-23

CLIENT ID: MW-FGD-06-2023Q4 **%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	10.4	ug/L	J	4.00	15.0	15.0	1	MS	PRB	11/18/23 15:16	231118-1	2527558
7440-70-2	Calcium	1300	ug/L		30.0	100	100	1	MS	PRB	11/18/23 15:16	231118-1	2527558

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2527558	2527557	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: 640960 **CONTRACT:** DMNN00102 **METHOD TYPE:** EPA

SAMPLE ID: 640960007 **LEVEL:** Low **DATE COLLECTED:** 11-OCT-23

CLIENT ID: AS-FGD-01-2023Q4 **%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	8.29	ug/L	J	4.00	15.0	15.0	1	MS	PRB	11/18/23 15:41	231118-1	2527558
7440-70-2	Calcium	1050	ug/L		30.0	100	100	1	MS	PRB	11/18/23 15:41	231118-1	2527558

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2527558	2527557	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: 640960 **CONTRACT:** DMNN00102 **METHOD TYPE:** EPA

SAMPLE ID: 640960008 **LEVEL:** Low **DATE COLLECTED:** 11-OCT-23

CLIENT ID: FBLK-WAT-CCR-FGD-234 **%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 15:45	231118-1	2527558
7440-70-2	Calcium	30.0	ug/L	U	30.0	100	100	1	MS	PRB	11/18/23 15:45	231118-1	2527558

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2527558	2527557	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: 640960 **CONTRACT:** DMNN00102 **METHOD TYPE:** EPA

SAMPLE ID: 640960009 **LEVEL:** Low **DATE COLLECTED:** 11-OCT-23

CLIENT ID: DU-WAT-CCR-FGD-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	8.32	ug/L	J	4.00	15.0	15.0	1	MS	PRB	11/18/23 15:48	231118-1	2527558
7440-70-2	Calcium	1050	ug/L		30.0	100	100	1	MS	PRB	11/18/23 15:48	231118-1	2527558

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2527558	2527557	EPA 200.2	50	mL	50	mL	11/17/23	SD

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

Quality Control Summary

METALS
-2a-
Initial and Continuing Calibration Verification

SDG No: 640960

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	98.5	ug/L	100	ug/L	98.5	90.0 - 110.0	MS	18-NOV-23 14:09	231118-1
	Calcium	5140	ug/L	5000	ug/L	102.8	90.0 - 110.0	MS	18-NOV-23 14:09	231118-1
CCV01										
	Boron	98.5	ug/L	100	ug/L	98.5	90.0 - 110.0	MS	18-NOV-23 14:27	231118-1
	Calcium	5080	ug/L	5000	ug/L	101.6	90.0 - 110.0	MS	18-NOV-23 14:27	231118-1
CCV02										
	Boron	99.6	ug/L	100	ug/L	99.6	90.0 - 110.0	MS	18-NOV-23 14:37	231118-1
	Calcium	5030	ug/L	5000	ug/L	100.5	90.0 - 110.0	MS	18-NOV-23 14:37	231118-1
CCV03										
	Boron	99.7	ug/L	100	ug/L	99.7	90.0 - 110.0	MS	18-NOV-23 15:09	231118-1
	Calcium	5060	ug/L	5000	ug/L	101.3	90.0 - 110.0	MS	18-NOV-23 15:09	231118-1
CCV04										
	Boron	96.9	ug/L	100	ug/L	96.9	90.0 - 110.0	MS	18-NOV-23 15:34	231118-1
	Calcium	5070	ug/L	5000	ug/L	101.5	90.0 - 110.0	MS	18-NOV-23 15:34	231118-1
CCV05										
	Boron	98.2	ug/L	100	ug/L	98.2	90.0 - 110.0	MS	18-NOV-23 16:02	231118-1
	Calcium	5020	ug/L	5000	ug/L	100.4	90.0 - 110.0	MS	18-NOV-23 16:02	231118-1

***Analytical Methods:**

MS EPA 200.8 SC_NPDES

EPA

METALS
-2b-
CRDL Standard for ICP & ICPMS

SDG No: 640960

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	15.4	ug/L	15	ug/L	102.4	70.0 - 130.0	MS	18-NOV-23 14:16	231118-1
	Calcium	236	ug/L	200	ug/L	118.1	70.0 - 130.0	MS	18-NOV-23 14:16	231118-1
CRDL02										
	Boron	15.3	ug/L	15	ug/L	102.2	70.0 - 130.0	MS	18-NOV-23 15:52	231118-1
	Calcium	220	ug/L	200	ug/L	110.1	70.0 - 130.0	MS	18-NOV-23 15:52	231118-1

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

Metals
-3a-
Initial and Continuing Calibration Blank Summary

SDG No.: 640960

Contract: DMNN00102

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	18-NOV-23 14:13	231118-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	18-NOV-23 14:13	231118-1
CCB01										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	18-NOV-23 14:30	231118-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	18-NOV-23 14:30	231118-1
CCB02										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	18-NOV-23 14:41	231118-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	18-NOV-23 14:41	231118-1
CCB03										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	18-NOV-23 15:13	231118-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	18-NOV-23 15:13	231118-1
CCB04										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	18-NOV-23 15:37	231118-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	18-NOV-23 15:37	231118-1
CCB05										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	18-NOV-23 16:06	231118-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	18-NOV-23 16:06	231118-1

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

EPA

METALS
-3b-
PREPARATION BLANK SUMMARY

SDG NO. 640960
Contract: DMNN00102
Matrix: GW

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1205578276								
	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: 640960

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	96800	ug/L	100000	ug/L	96.8	80.0 - 120.0	18-NOV-23 14:20	231118-1
	Boron	2.81	ug/L					18-NOV-23 14:20	231118-1
ICSAB01									
	Boron	19.7	ug/L	20	ug/L	98.6	80.0 - 120.0	18-NOV-23 14:23	231118-1
	Calcium	96100	ug/L	100000	ug/L	96.1	80.0 - 120.0	18-NOV-23 14:23	231118-1
ICSA02									
	Boron	2.07	ug/L					18-NOV-23 15:55	231118-1
	Calcium	96300	ug/L	100000	ug/L	96.3	80.0 - 120.0	18-NOV-23 15:55	231118-1
ICSAB02									
	Boron	20.2	ug/L	20	ug/L	101	80.0 - 120.0	18-NOV-23 15:59	231118-1
	Calcium	97600	ug/L	100000	ug/L	97.6	80.0 - 120.0	18-NOV-23 15:59	231118-1

METALS
-5a-

Matrix Spike Summary

SDG NO. 640960 **Client ID:** MW-FGD-06-2023Q4S

Contract: DMNN00102 **Level:** Low

Matrix: GROUND WATER **% Solids:**

Sample ID: 640960006 **Spike ID:** 1205545293

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Boron	ug/L	75-125	129		13.3	B	100	115		MS
Calcium	ug/L	75-125	3340		1330		2000	100		MS

***Analytical Methods:**

MS **SW846 3005A/6020B**

METALS
-5a-

Matrix Spike Summary

SDG NO. 640960 **Client ID:** MW-FGD-06-2023Q4S

Contract: DMNN00102 **Level:** Low

Matrix: GROUND WATER **% Solids:**

Sample ID: 640960006 **Spike ID:** 1205578279

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Boron	ug/L	75-125	106		10.4	B	100	95.9		MS
Calcium	ug/L	75-125	3340		1300		2000	102		MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

Metals
-6-
Duplicate Sample Summary

SDG No.: 640960 **Lab Code:** GEL

Contract: DMNN00102 **Client ID:** MW-FGD-06-2023Q4D

Matrix: GROUND WATER **Level:** Low

Sample ID: 640960006 **Duplicate ID:** 1205545292 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Boron	ug/L	+/-30	13.3	B	13.4	B	.788		MS
Calcium	ug/L	+/-20%	1330		1290		2.98		MS

***Analytical Methods:**
MS SW846 3005A/6020B

Metals
-6-
Duplicate Sample Summary

SDG No.: 640960 **Lab Code:** GEL

Contract: DMNN00102 **Client ID:** MW-FGD-06-2023Q4D

Matrix: GROUND WATER **Level:** Low

Sample ID: 640960006 **Duplicate ID:** 1205578278 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Boron	ug/L	+/-30	10.4	B	10.7	B	3.21		MS
Calcium	ug/L	+/-20%	1300		1330		1.96		MS

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

METALS
-7-
Laboratory Control Sample Summary

SDG NO. 640960

Contract: DMNN00102

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1205545291								
	Boron	ug/L	100	116		116	80-120	MS
	Calcium	ug/L	2000	1990		99.6	80-120	MS

***Analytical Methods:**

MS **SW846 3005A/6020B**

METALS
-7-
Laboratory Control Sample Summary

SDG NO. 640960

Contract: DMNN00102

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1205578277								
	Calcium	ug/L	2000	2100		105	85-115	MS
	Boron	ug/L	100	97.6		97.6	85-115	MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-9-
Serial Dilution Sample Summary

SDG NO. 640960 **Client ID:** MW-FGD-06-2023Q4L

Contract: DMNN00102

Matrix: LIQUID **Level:** Low

Sample ID: 640960006 **Serial Dilution ID:** 1205545294

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Boron	13.3	B	26	U	21.46			MS
Calcium	1330		1410		5.986			MS

***Analytical Methods:**

MS **SW846 3005A/6020B**

METALS
-9-
Serial Dilution Sample Summary

SDG NO. 640960 **Client ID:** MW-FGD-06-2023Q4L

Contract: DMNN00102

Matrix: LIQUID **Level:** Low

Sample ID: 640960006 **Serial Dilution ID:** 1205578280

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Boron	10.4	B	20	U	33.189			MS
Calcium	1300		1240		4.801			MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-13-
SAMPLE PREPARATION SUMMARY

SDG No: 640960 **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 2527557							
1205578276	MB for batch 2527557	MB	G	17-NOV-23	50mL	50mL	
1205578277	LCS for batch 2527557	LCS	G	17-NOV-23	50mL	50mL	
1205578279	MW-FGD-06-2023Q4S	MS	G	17-NOV-23	50mL	50mL	
1205578278	MW-FGD-06-2023Q4D	DUP	G	17-NOV-23	50mL	50mL	
640960001	MW-FGD-01-2023Q4	SAMPLE	G	17-NOV-23	50mL	50mL	
640960002	MW-FGD-02-2023Q4	SAMPLE	G	17-NOV-23	50mL	50mL	
640960003	MW-FGD-03-2023Q4	SAMPLE	G	17-NOV-23	50mL	50mL	
640960004	MW-FGD-04-2023Q4	SAMPLE	G	17-NOV-23	50mL	50mL	
640960005	MW-FGD-05-2023Q4	SAMPLE	G	17-NOV-23	50mL	50mL	
640960006	MW-FGD-06-2023Q4	SAMPLE	G	17-NOV-23	50mL	50mL	
640960007	AS-FGD-01-2023Q4	SAMPLE	G	17-NOV-23	50mL	50mL	
640960008	FBLK-WAT-CCR-FGD-23401	SAMPLE	G	17-NOV-23	50mL	50mL	
640960009	DU-WAT-CCR-FGD-23401	SAMPLE	G	17-NOV-23	50mL	50mL	

EPA

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
Dominion Energy
SDG #: 640960

Product: **Ion Chromatography**
Analytical Method: EPA 300.0
Analytical Procedure: GL-GC-E-086 REV# 33
Analytical Batch: 2507968

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

GEL Sample ID#	Client Sample Identification
640960001	MW-FGD-01-2023Q4
640960002	MW-FGD-02-2023Q4
640960003	MW-FGD-03-2023Q4
640960004	MW-FGD-04-2023Q4
640960005	MW-FGD-05-2023Q4
640960006	MW-FGD-06-2023Q4
640960007	AS-FGD-01-2023Q4
640960008	FBLK-WAT-CCR-FGD-23401
640960009	DU-WAT-CCR-FGD-23401
1205545315	Method Blank (MB)
1205545316	Laboratory Control Sample (LCS)
1205545317	640960006(MW-FGD-06-2023Q4) Sample Duplicate (DUP)
1205545318	640960006(MW-FGD-06-2023Q4) Post Spike (PS)
1205545319	640966004(MW-AP-03-2023Q4) Sample Duplicate (DUP)
1205545320	640966004(MW-AP-03-2023Q4) 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	1205545318 (MW-FGD-06-2023Q4PS)	112* (90%-110%)
	1205545320 (MW-AP-03-2023Q4PS)	111* (90%-110%)

Technical Information

Sample Dilutions

The following samples 1205545319 (MW-AP-03-2023Q4DUP), 1205545320 (MW-AP-03-2023Q4PS), 640960003 (MW-FGD-03-2023Q4), 640960004 (MW-FGD-04-2023Q4) and 640960005 (MW-FGD-05-2023Q4) were diluted because target analyte concentrations exceeded the calibration range. Samples 1205545319 (MW-AP-03-2023Q4DUP) and 1205545320 (MW-AP-03-2023Q4PS) were diluted based on historical data. 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	640960		
	003	**004**	**005**
Chloride	1X	5X	10X
Sulfate	5X	1X	10X

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# 21
Analytical Batch: 2508078

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

GEL Sample ID#	Client Sample Identification
640960001	MW-FGD-01-2023Q4
640960002	MW-FGD-02-2023Q4
640960003	MW-FGD-03-2023Q4
640960004	MW-FGD-04-2023Q4
640960005	MW-FGD-05-2023Q4
640960006	MW-FGD-06-2023Q4
640960007	AS-FGD-01-2023Q4
640960008	FBLK-WAT-CCR-FGD-23401
640960009	DU-WAT-CCR-FGD-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)

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

Data Summary:

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

Miscellaneous Information

Additional Comments
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: 640960 GEL Work Order: 640960

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-FGD-01-2023Q4	Project:	DMNN00102
Sample ID:	640960001	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	11-OCT-23 16:25		
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		6.56	0.0670	0.200	mg/L		1	LXA2	10/13/23	2326	2507968	1
Fluoride	U	ND	0.0330	0.100	mg/L		1					
Sulfate		2.14	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C Dissolved Solids "As Received"												
Total Dissolved Solids	J	3.00	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-FGD-02-2023Q4	Project:	DMNN00102
Sample ID:	640960002	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	11-OCT-23 13:40		
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		7.13	0.0670	0.200	mg/L		1	LXA2	10/14/23	0129	2507968	1
Fluoride	J	0.0361	0.0330	0.100	mg/L		1					
Sulfate		10.5	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C Dissolved Solids "As Received"												
Total Dissolved Solids	J	6.00	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-FGD-03-2023Q4	Project:	DMNN00102
Sample ID:	640960003	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	11-OCT-23 12:35		
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"												
Sulfate		26.0	0.665	2.00	mg/L		5	LXA2	10/14/23	1916	2507968	1
Chloride		6.60	0.0670	0.200	mg/L		1	LXA2	10/14/23	0200	2507968	2
Fluoride	J	0.0369	0.0330	0.100	mg/L		1					
Solids Analysis												
SM2540C Dissolved Solids "As Received"												
Total Dissolved Solids		51.0	2.38	10.0	mg/L			CH6	10/13/23	1502	2508078	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-FGD-04-2023Q4	Project:	DMNN00102
Sample ID:	640960004	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	11-OCT-23 11:15		
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"												
Fluoride	U	ND	0.0330	0.100	mg/L		1	LXA2	10/14/23	0231	2507968	1
Sulfate		7.00	0.133	0.400	mg/L		1					
Chloride		10.2	0.335	1.00	mg/L		5	LXA2	10/14/23	1947	2507968	2
Solids Analysis												
SM2540C Dissolved Solids "As Received"												
Total Dissolved Solids	J	8.00	2.38	10.0	mg/L			CH6	10/13/23	1502	2508078	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

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-FGD-05-2023Q4	Project:	DMNN00102
Sample ID:	640960005	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	11-OCT-23 10:00		
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"												
Fluoride	U	ND	0.0330	0.100	mg/L		1	LXA2	10/14/23	0302	2507968	1
Chloride		13.4	0.670	2.00	mg/L		10	LXA2	10/14/23	2017	2507968	2
Sulfate		32.2	1.33	4.00	mg/L		10					
Solids Analysis												
SM2540C Dissolved Solids "As Received"												
Total Dissolved Solids		100	2.38	10.0	mg/L			CH6	10/13/23	1502	2508078	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-FGD-06-2023Q4	Project:	DMNN00102
Sample ID:	640960006	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	11-OCT-23 14:50		
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		5.65	0.0670	0.200	mg/L		1	LXA2	10/14/23	0333	2507968	1
Fluoride	U	ND	0.0330	0.100	mg/L		1					
Sulfate		5.91	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C Dissolved Solids "As Received"												
Total Dissolved Solids		21.0	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:	AS-FGD-01-2023Q4	Project:	DMNN00102
Sample ID:	640960007	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	11-OCT-23 09:00		
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		7.51	0.0670	0.200	mg/L		1	LXA2	10/14/23	0505	2507968	1
Fluoride	U	ND	0.0330	0.100	mg/L		1					
Sulfate		1.01	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	10/13/23	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:	FBLK-WAT-CCR-FGD-23401	Project:	DMNN00102
Sample ID:	640960008	Client ID:	DMNN001
Matrix:	AQ		
Collect Date:	11-OCT-23 12:45		
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	J	0.173	0.0670	0.200	mg/L		1	LXA2	10/14/23	0536	2507968	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	U	ND	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:	DU-WAT-CCR-FGD-23401	Project:	DMNN00102
Sample ID:	640960009	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	11-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		7.45	0.0670	0.200	mg/L		1	LXA2	10/14/23	0607	2507968	1
Fluoride	U	ND	0.0330	0.100	mg/L		1					
Sulfate		0.868	0.133	0.400	mg/L		1					
Solids Analysis												
SM2540C Dissolved Solids "As Received"												
Total Dissolved Solids		23.0	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

Quality Control Summary

QC Summary

Report Date: October 26, 2023

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

Contact: **Kelly Hicks**

Workorder: **640960**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 2507968										
QC1205545317 640960006 DUP										
Chloride		5.65		5.65	mg/L	0.0265		(0%-20%)	LXA2	10/14/23 04:04
Fluoride	U	ND	U	ND	mg/L	N/A				
Sulfate		5.91		6.17	mg/L	4.33		(0%-20%)		
QC1205545319 640966004 DUP										
Chloride		114		114	mg/L	0.151		(0%-20%)		10/14/23 22:52
Fluoride		0.524		0.539	mg/L	2.92		(0%-20%)		10/15/23 01:57
Sulfate		55.4		55.4	mg/L	0.161		(0%-20%)		10/14/23 10:14
QC1205545316 LCS										
Chloride	5.00			4.62	mg/L		92.4	(90%-110%)		10/13/23 22:55
Fluoride	2.50			2.37	mg/L		94.9	(90%-110%)		
Sulfate	10.0			9.52	mg/L		95.2	(90%-110%)		
QC1205545315 MB										
Chloride			U	ND	mg/L					10/13/23 22:24
Fluoride			U	ND	mg/L					
Sulfate			U	ND	mg/L					
QC1205545318 640960006 PS										
Chloride	5.00	5.65		11.2	mg/L		112*	(90%-110%)		10/14/23 04:35

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

QC Summary

Workorder: **640960**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 2507968											
Fluoride	2.50	U	ND		2.65	mg/L		105	(90%-110%)	LXA2	10/14/23 04:35
Sulfate	10.0		5.91		15.7	mg/L		98.2	(90%-110%)		
QC1205545320 640966004 PS											
Chloride	5.00		5.69		11.2	mg/L		111*	(90%-110%)		10/14/23 23:23
Fluoride	2.50		0.524		3.07	mg/L		102	(90%-110%)		10/15/23 02:28
Sulfate	10.0		5.54		15.7	mg/L		102	(90%-110%)		10/14/23 10:45
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

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: **640960**

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.

Appendix E
First Semiannual Detection Monitoring Program Statistical Evaluation

DOMINION ENERGY SOUTH CAROLINA

WATEREE STATION FLUE GAS DESULFURIZATION POND

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.
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Table of Contents

List of Tables

List of Appendices

Statistical Analysis Report

Groundwater Sampling

TRC Environmental Corporation (TRC) is providing this Statistically Significant Increases (SSI) notification for the Wateree Station Flue Gas Desulfurization (FGD) Pond 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-FGD-02: calcium and sulfate
- MW-FGD-03: calcium and sulfate
- MW-FGD-04: chloride, calcium, and sulfate
- MW-FGD-05: calcium, chloride, pH, sulfate, and total dissolved solids (TDS)

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-FGD-01, MW-AP-01A, MW-BG-73, MW-FGD-01). 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 FGD Pond*, 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.

- 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. No outliers were identified in the new data appended to the background data sets based on the Q-Q graphs.
- ProUCL was used to calculate a background threshold value (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 quantitation (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; 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
BL 8	AS-FGD-01	<44.2	1070	6.33	0.049	4.65	<0.129	42
DM 1	AS-FGD-01	<44.2	705	6.54	<0.1	4.34	<0.129	28
DM 2	AS-FGD-01	<44.2	732	6.62	<0.025	4.69	<0.129	49
DM 3	AS-FGD-01	<50	<5000 [2]	7.5	<0.1	5.43	11 [2]	31
DM 4	AS-FGD-01	<38.458	844	6.96	<0.008	4.4	<0.129	20
DM 5	AS-FGD-01	<38.458	778	7.19	<0.008	3.84	<0.063	38 [3]
DM 6	AS-FGD-01	<38.458	865	7.3	<0.008	4.49	<0.063	48
DM 7	AS-FGD-01	<38.458	674	7.49	<0.008	4.28	<0.063	72
DM 8	AS-FGD-01	7.22	950	8.02	0.058	4.53	0.409	48.6
DM 9	AS-FGD-01	8.43	937	8.02	<0.033	4.54	0.424	22.9
DM 10	AS-FGD-01	7.08	1350	8.47	<0.033	4.10	0.305	45.7
DM 11	AS-FGD-01	8.52	994	7.32	0.0739	4.44	< 0.362	28
BL 1	MW-AP-01A	<55.7	781	5.64	<0.033	4.74	<0.129	32
BL 2	MW-AP-01A	<55.7	781	5.4	<0.033	4.63	<0.129	27
BL 3	MW-AP-01A	<55.7	721	5.35	0.06	4.45	<0.129	37
BL 4	MW-AP-01A	<55.7	732	5.41	0.04	4.81	<0.129	36
BL 5	MW-AP-01A	<44.2	657	4.93	0.049	4.63	0.83	36
BL 6	MW-AP-01A	<44.2	1510	4.77	<0.033	4.45	<0.129	26
BL 7	MW-AP-01A	<44.2	677	4.6	<0.033	4.98	<0.129	32
BL 8	MW-AP-01A	<44.2	700	5.37	0.04	4.32	<0.129	33
DM 1	MW-AP-01A	<44.2	511	4.97	<0.033	4.55	<0.129	27

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-AP-01A	<44.2	557	5.02	<0.025	4.44	<0.129	32
DM 3	MW-AP-01A	<21.9	514	5.36	<0.025	4.57	<0.129	31
DM 4	MW-AP-01A	39.1	648	5.49	<0.008	4.38	<0.129	37
DM 5	MW-AP-01A	58.5	529	5.25	<0.008	3.89	<0.063	43
DM 6	MW-AP-01A	138 [2]	730	5.53	<0.008	4.67	<0.063	60
DM 7	MW-AP-01A	39.1	582	5.96	<0.008	4.62 [3]	<0.063	50
DM 8	MW-AP-01A	< 13.1	674	6.14	< 0.0330	5.11	0.672	70
DM 9	MW-AP-01A	11.7	542	6.46	< 0.0330	4.43	0.292	25.7
DM 10	MW-AP-01A	10.9	593	5.91	< 0.0330	4.56	0.205	27.1
DM 11	MW-AP-01A	16.5	489	5.75	< 0.0330	4.19	< 0.307	8
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	372	2.55	<0.033	4.61	0.444	20
DM 9	MW-BG-73	8.82	275	2.52	<0.033	4.5	< 0.133	12.9
DM 10	MW-BG-73	9.68	332	2.44	<0.033	4.45	0.355	5.71
DM 11	MW-BG-73	10.9	280	2.52	<0.033	4.13	0.398	< 2.38
BL 1	MW-FGD-01	<55.7	359	3.54	<0.033	3.44	<0.129	32

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
BL 2	MW-FGD-01	<55.7	753	6.0	<0.033	4.69	<0.129	27
BL 3	MW-FGD-01	<55.7	803	7.0	<0.033	3.9	<0.129	33
BL 4	MW-FGD-01	<55.7	821	7.21	<0.033	4.57	<0.129	49
BL 5	MW-FGD-01	<44.2	936	7.76	<0.033	4.68	<0.129	29
BL 6	MW-FGD-01	<44.2	832	5.83	<0.033	4.35	<0.129	31
BL 7	MW-FGD-01	<44.2	669	4.77	<0.033	4.33	<0.129	35
BL 8	MW-FGD-01	<44.2	1910	5.84	0.036	4.47	<0.129	22
DM 1	MW-FGD-01	<44.2	638	5.88	<0.033	4.51	<0.129	29
DM 2	MW-FGD-01	<44.2	820	7.12	<0.025	4.33	<0.129	47
DM 3	MW-FGD-01	23.5	982	7.55	<0.025	4.62	<0.129	36
DM 4	MW-FGD-01	<38.458	1070	6.79	<0.008	4.8	<0.129	41
DM 5	MW-FGD-01	<38.458	855	6.71	<0.008	3.81	<0.063	31
DM 6	MW-FGD-01	<38.458	962 [3]	10.80	<0.008	4.64	<0.063	52
DM 7	MW-FGD-01	<38.458	815	6.13	<0.008	3.72	<0.063	64
DM 8	MW-FGD-01	11.0	1290	8.19	< 0.0330	4.57	0.803	28.6
DM 9	MW-FGD-01	9.0	1400	9.0	< 0.0330	4.51	0.883	37.1
DM 10	MW-FGD-01	7.96	1490	8.55	< 0.0330	4.23	0.608	60
DM 11	MW-FGD-01	9.79	904	6.09	< 0.0330	4.3	0.756	8.0

Events DM-8 through DM-11 (bolded) comprise the appended data
[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 (original baseline data set)
[3] Outlier replaced by verification resample result (value shown on table)

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
Boron (µg/L)	59 [1]	32	Nonparametric	N/A	58.5	95% USL
Calcium (µg/L)	59 [1]	100	Approx. Normal	N/A	1541	95% UPL (4)
Chloride (mg/L)	60	100	Normal	N/A	10.3	95% UPL (4)
Fluoride(mg/L)	60	13	Nonparametric	N/A	DQR [0.1]	PQL [0.1]
pH (s.u.)	60	100	Normal	N/A	3.65 - 5.27	95% UPL/LPL (4)
Sulfate (mg/L	59 [1]	24	Nonparametric	N/A	0.883	95% USL
TDS (mg/L)	60	98	Normal	N/A	68.6	95% UPL (4)

[1] Outlier excluded from data set (original baseline data set)
N/A Not Applicable – trend test conducted only for data sets where the null hypothesis for the WMW test was rejected

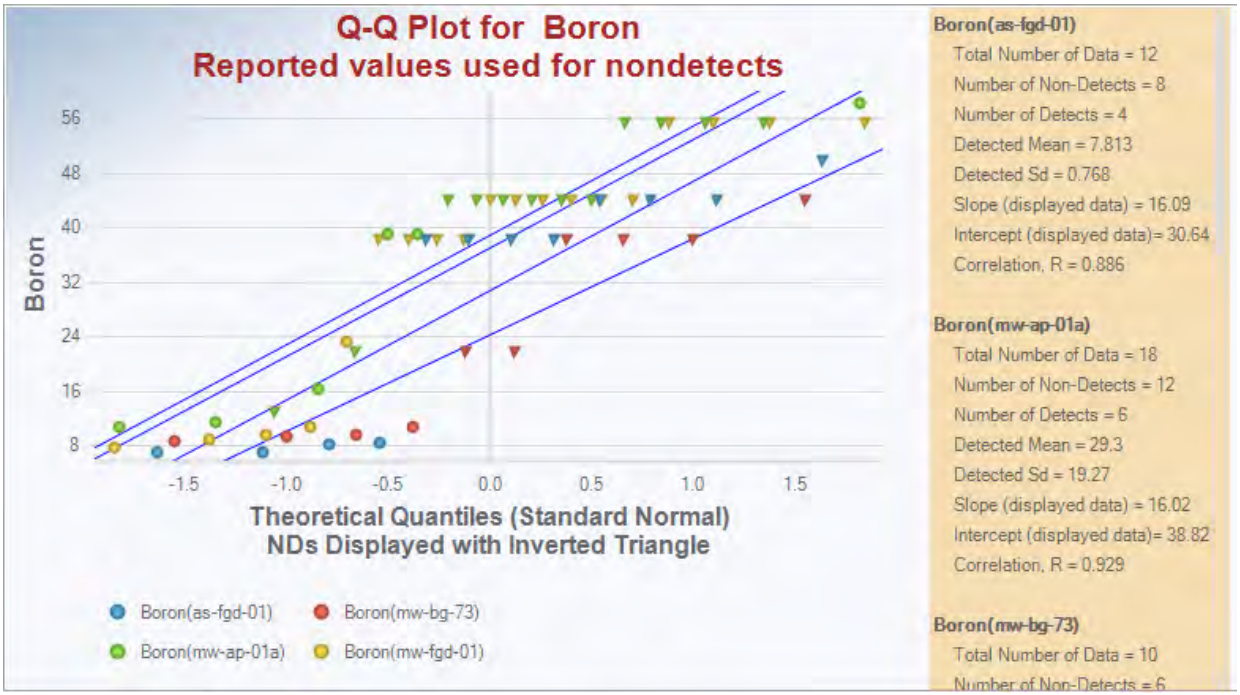
Table 3
March 2023 Downgradient Results and Potential SSIs

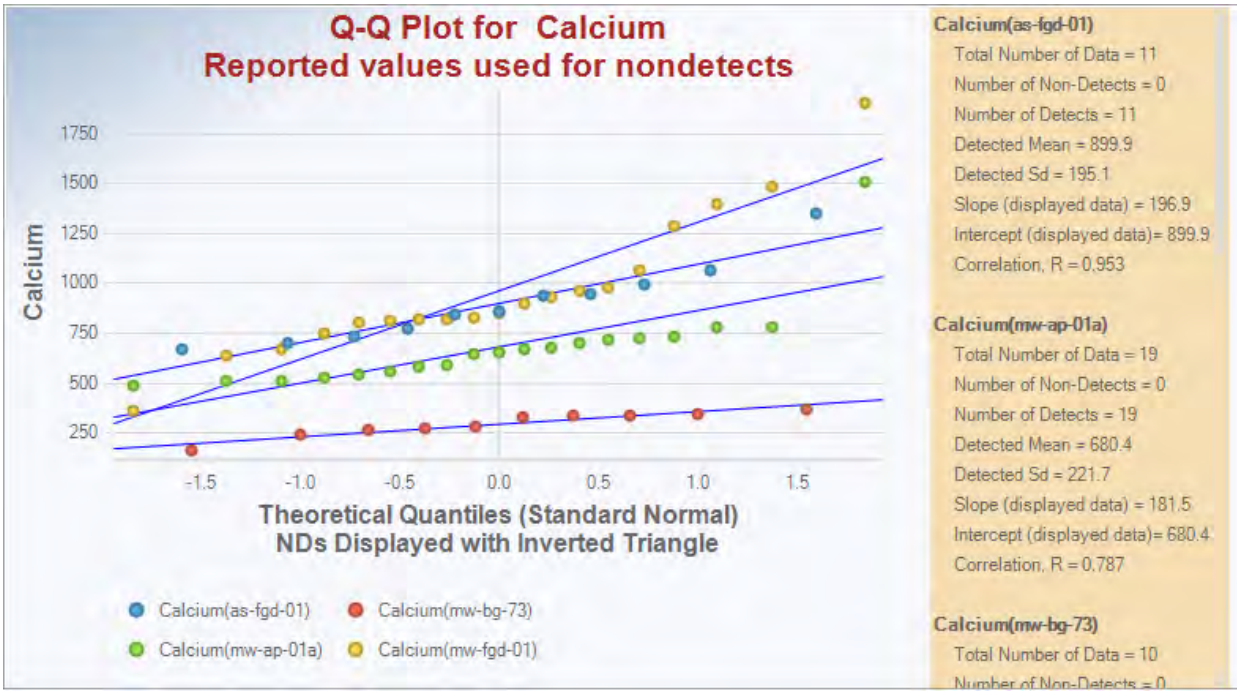
Table 3 March 2023 Downgradient Results and Potential SSLs

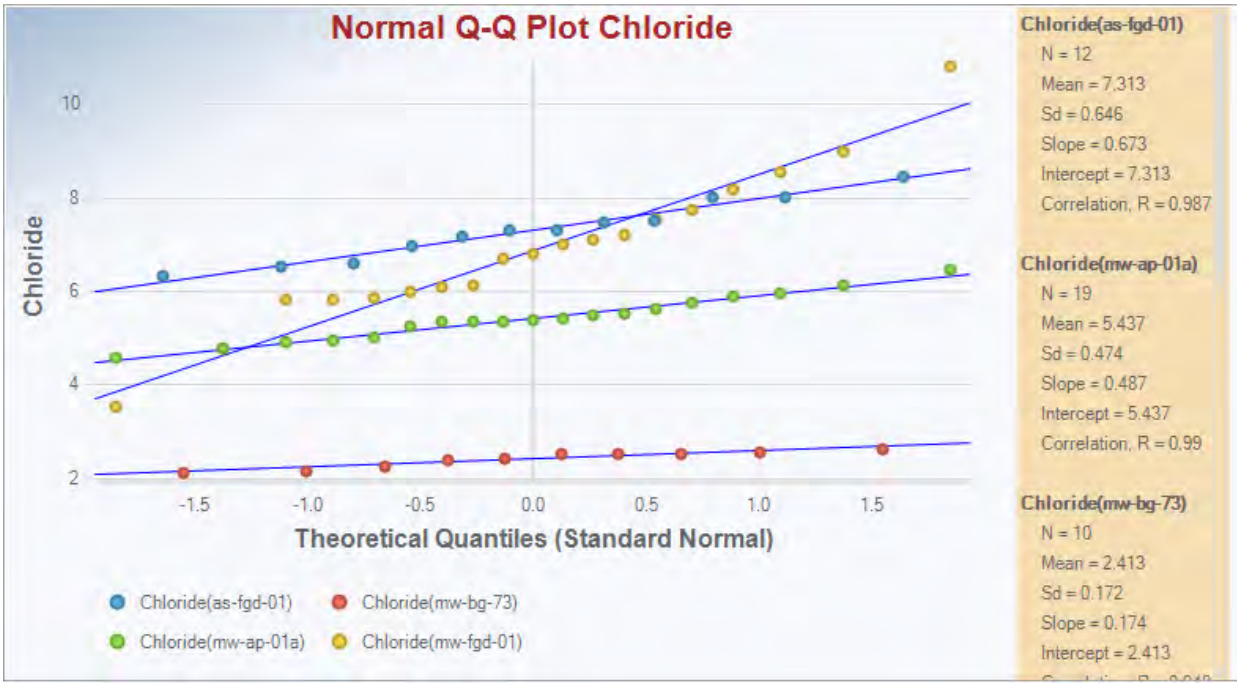
WELL	CONSTITUENT / BTV / RESULT (mg/L except as noted)[1]						
	BORON	CALCIUM	CHLORIDE	FLUORIDE	pH	SULFATE	TDS
	58.5	1,541	10.3	DQR [0.1]	3.65 - 5.27	0.883	68.6
BACKGROUND WELLS							
AS-FGD-01	4.78 J	1170	8.54	< 0.0330	4.46	0.326 J	26
MW-AP-01A	< 13.5	695	5.87	< 0.0330	4.91	0.274 J	21
MW-BG-73	6.60 J	302	< 2.40	< 0. 0330	4.65	0.265 J	< 2.38
MW-FGD-01	7.56 J	1,500	9.45	0.0672 J	4.42	0.962	14
DOWNGRADIENT WELLS							
MW-FGD-02	24.8 J	8,390	7.36	< 0. 0330	5.26	8.59	36.0
MW-FGD-03	11.3 J	7,020	6.59	0.0905 J	5.13	25.8	39
MW-FGD-04	< 20.0	4,890	20.2	0.0876 J	4.31	5.24	46.0
MW-FGD-05	31.4	25,500	10.6	0.0712 J	5.60	22.1	105

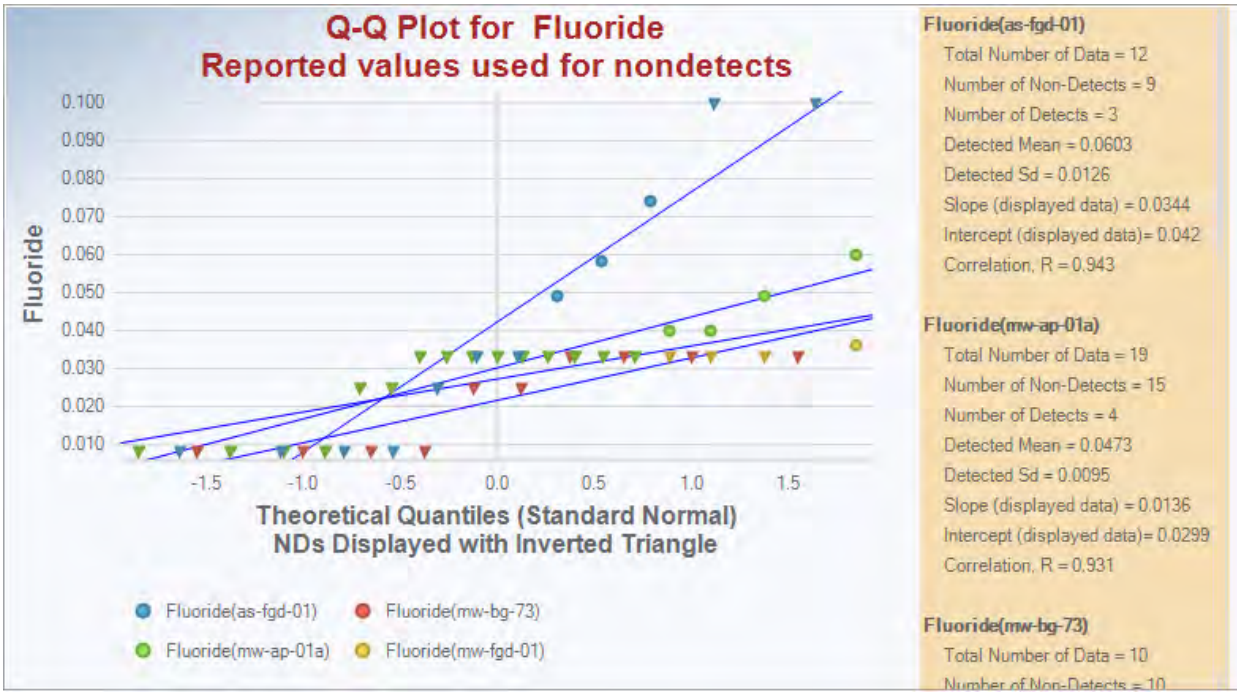
[1] Boron and calcium concentration expressed in µg/L; pH expressed in standard units (s.u.)
J Estimated value between the method detection limit and the practical quantitation limit

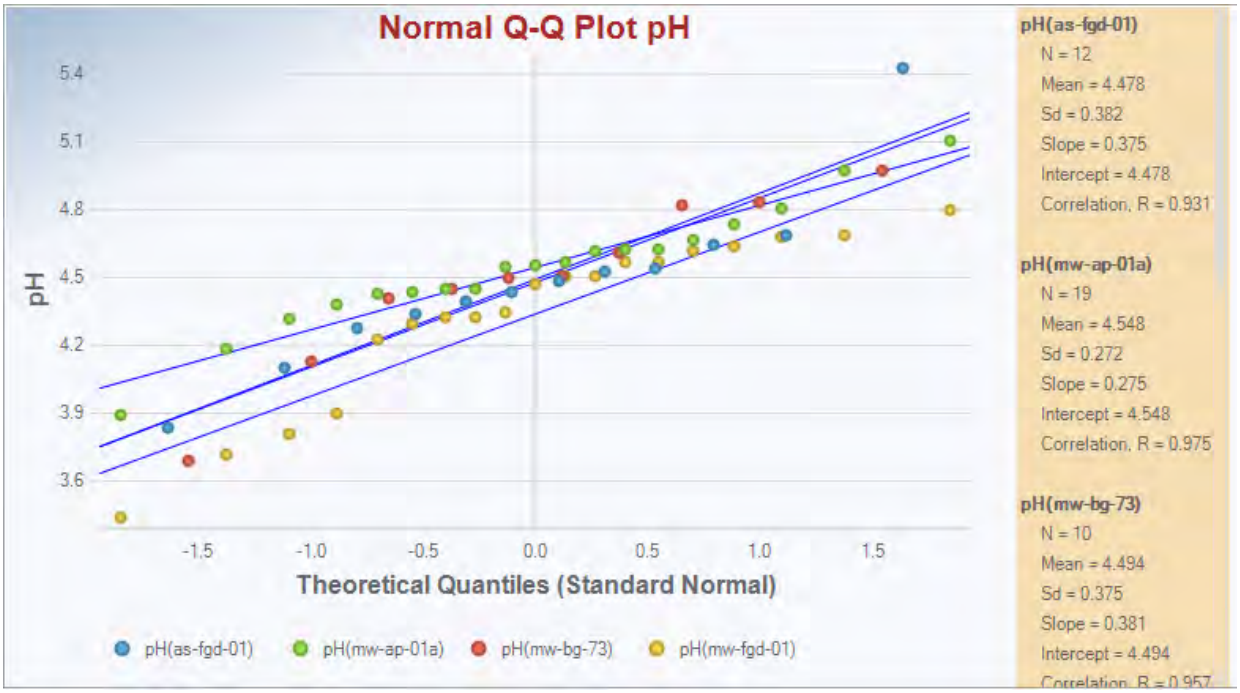
Appendix A
Probability (Q-Q) Plots

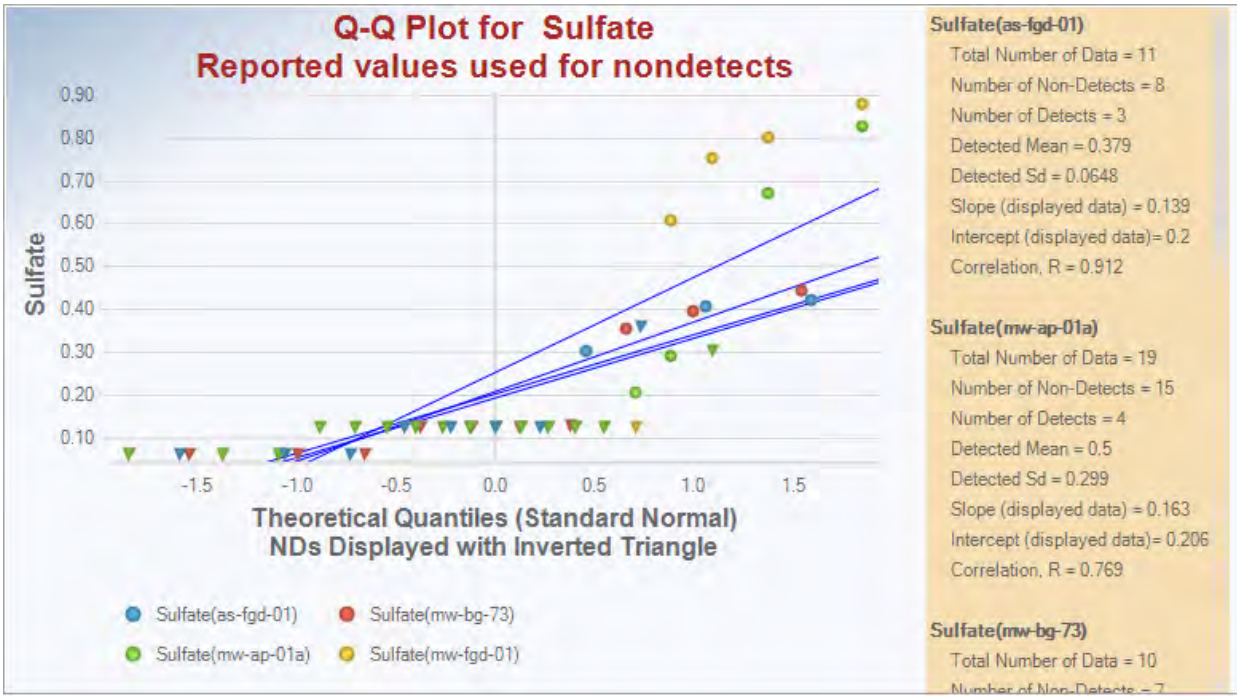

Q-Q Plot for Boron
Reported values used for nondetects
Boron
56
48
40
32
24
16
8
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle
Boron(as-fgd-01)
Boron(mw-bg-73)
Boron(mw-ap-01a)
Boron(mw-fgd-01)
Boron(as-fgd-01)
Total Number of Data = 12
Number of Non-Detects = 8
Number of Detects = 4
Detected Mean = 7.813
Detected Sd = 0.768
Slope (displayed data) = 16.09
Intercept (displayed data)= 30.64
Correlation, R = 0.886
Boron(mw-ap-01a)
Total Number of Data = 18
Number of Non-Detects = 12
Number of Detects = 6
Detected Mean = 29.3
Detected Sd = 19.27
Slope (displayed data) = 16.02
Intercept (displayed data)= 38.82
Correlation, R = 0.929
Boron(mw-bg-73)
Total Number of Data = 10
Number of Non-Detects = 6

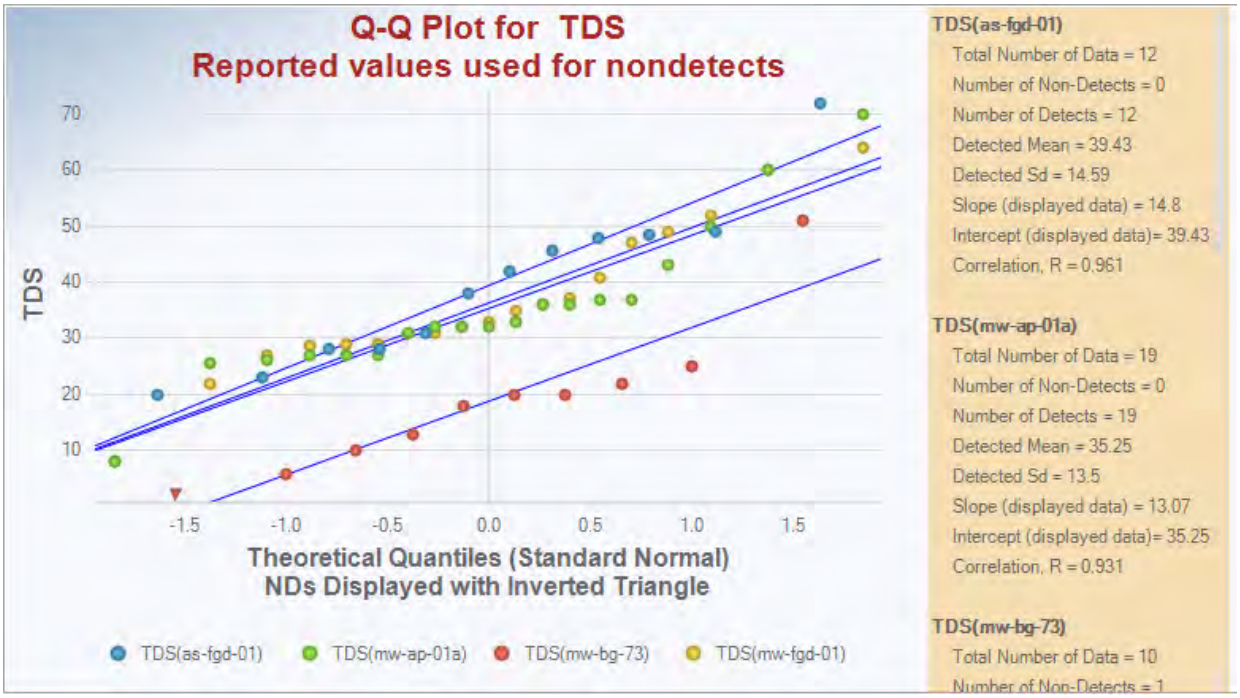

Q-Q Plot for Calcium
Reported values used for nondetects
Calcium
1750
1500
1250
1000
750
500
250
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle
Calcium(as-fgd-01)
Calcium(mw-bg-73)
Calcium(mw-ap-01a)
Calcium(mw-fgd-01)
Calcium(as-fgd-01)
Total Number of Data = 11
Number of Non-Detects = 0
Number of Detects = 11
Detected Mean = 899.9
Detected Sd = 195.1
Slope (displayed data) = 196.9
Intercept (displayed data)= 899.9
Correlation, R = 0.953
Calcium(mw-ap-01a)
Total Number of Data = 19
Number of Non-Detects = 0
Number of Detects = 19
Detected Mean = 680.4
Detected Sd = 221.7
Slope (displayed data) = 181.5
Intercept (displayed data)= 680.4
Correlation, R = 0.787
Calcium(mw-bg-73)
Total Number of Data = 10
Number of Non-Detects = 0


Normal Q-Q Plot Chloride
Chloride
Theoretical Quantiles (Standard Normal)
Chloride(as-fgd-01)
Chloride(mw-bg-73)
Chloride(mw-ap-01a)
Chloride(mw-fgd-01)
Chloride(as-fgd-01)
N = 12
Mean = 7.313
Sd = 0.646
Slope = 0.673
Intercept = 7.313
Correlation, R = 0.987
Chloride(mw-ap-01a)
N = 19
Mean = 5.437
Sd = 0.474
Slope = 0.487
Intercept = 5.437
Correlation, R = 0.99
Chloride(mw-bg-73)
N = 10
Mean = 2.413
Sd = 0.172
Slope = 0.174
Intercept = 2.413


Q-Q Plot for Fluoride
Reported values used for nondetects
Fluoride
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle
Fluoride(as-fgd-01)
Fluoride(mw-bg-73)
Fluoride(mw-ap-01a)
Fluoride(mw-fgd-01)
Fluoride(as-fgd-01)
Total Number of Data = 12
Number of Non-Detects = 9
Number of Detects = 3
Detected Mean = 0.0603
Detected Sd = 0.0126
Slope (displayed data) = 0.0344
Intercept (displayed data)= 0.042
Correlation, R = 0.943
Fluoride(mw-ap-01a)
Total Number of Data = 19
Number of Non-Detects = 15
Number of Detects = 4
Detected Mean = 0.0473
Detected Sd = 0.0095
Slope (displayed data) = 0.0136
Intercept (displayed data)= 0.0299
Correlation, R = 0.931
Fluoride(mw-bg-73)
Total Number of Data = 10


Normal Q-Q Plot pH
pH
5.4
5.1
4.8
4.5
4.2
3.9
3.6
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)
pH(as-fgd-01)
pH(mw-ap-01a)
pH(mw-bg-73)
pH(mw-fgd-01)
pH(as-fgd-01)
N = 12
Mean = 4.478
Sd = 0.382
Slope = 0.375
Intercept = 4.478
Correlation, R = 0.931
pH(mw-ap-01a)
N = 19
Mean = 4.548
Sd = 0.272
Slope = 0.275
Intercept = 4.548
Correlation, R = 0.975
pH(mw-bg-73)
N = 10
Mean = 4.494
Sd = 0.375
Slope = 0.381
Intercept = 4.494


Q-Q Plot for Sulfate
Reported values used for nondetects
Sulfate
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
-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-fgd-01)
Sulfate(mw-bg-73)
Sulfate(mw-ap-01a)
Sulfate(mw-fgd-01)
Sulfate(as-fgd-01)
Total Number of Data = 11
Number of Non-Detects = 8
Number of Detects = 3
Detected Mean = 0.379
Detected Sd = 0.0648
Slope (displayed data) = 0.139
Intercept (displayed data)= 0.2
Correlation, R = 0.912
Sulfate(mw-ap-01a)
Total Number of Data = 19
Number of Non-Detects = 15
Number of Detects = 4
Detected Mean = 0.5
Detected Sd = 0.299
Slope (displayed data) = 0.163
Intercept (displayed data)= 0.206
Correlation, R = 0.769
Sulfate(mw-bg-73)
Total Number of Data = 10


Q-Q Plot for TDS
Reported values used for nondetects
TDS
70
60
50
40
30
20
10
-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-fgd-01)
TDS(mw-ap-01a)
TDS(mw-bg-73)
TDS(mw-fgd-01)
TDS(as-fgd-01)
Total Number of Data = 12
Number of Non-Detects = 0
Number of Detects = 12
Detected Mean = 39.43
Detected Sd = 14.59
Slope (displayed data) = 14.8
Intercept (displayed data)= 39.43
Correlation, R = 0.961
TDS(mw-ap-01a)
Total Number of Data = 19
Number of Non-Detects = 0
Number of Detects = 19
Detected Mean = 35.25
Detected Sd = 13.5
Slope (displayed data) = 13.07
Intercept (displayed data)= 35.25
Correlation, R = 0.931
TDS(mw-bg-73)
Total Number of Data = 10
Number of Non-Detects = 1

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 5/25/2023 10:10:01 AM
From File	WorkSheet.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 (new)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	43	16
Number of Missing Observations	1	0
Number of Non-Detects	0	0
Number of Detect Data	43	16
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non-detects	0.00%	0.00%
Minimum Detect	161	275
Maximum Detect	1910	1490
Mean of Detects	725.8	804.5
Median of Detects	730	789
SD of Detects	311.5	419.4

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Sample 1 = Mean/Median of Sample 2

Sample 1 Rank Sum W-Stat	1260
WMW U-Stat	313.5
Standardized WMW U-Stat	-0.52
Mean (U)	344
SD(U) - Adj ties	58.65
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)	0.603

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 5/25/2023 10:08:42 AM
From File	WorkSheet.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	44	16
Number of Distinct Observations	43	14
Minimum	2.14	2.44
Maximum	10.8	9
Mean	5.637	6.122
Median	5.735	6.3
SD	1.768	2.383
SE of Mean	0.267	0.596

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Sample 1 = Mean/Median of Sample 2

Sample 1 Rank Sum W-Stat	1249
WMW U-Stat	259
Standardized WMW U-Stat	-1.555
Mean (U)	352
SD(U) - Adj ties	59.82
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)	0.12

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 5/25/2023 10:09:22 AM
From File	WorkSheet.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	44	16
Number of Distinct Observations	36	16
Minimum	3.44	4.1
Maximum	5.43	5.11
Mean	4.463	4.45
Median	4.51	4.475
SD	0.381	0.241
SE of Mean	0.0574	0.0603

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Sample 1 = Mean/Median of Sample 2

Sample 1 Rank Sum W-Stat	1401
WMW U-Stat	410.5
Standardized WMW U-Stat	0.978
Mean (U)	352
SD(U) - Adj ties	59.81
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)	0.328

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 5/25/2023 10:12:19 AM
From File	WorkSheet.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 (previous)

Sample 2 Data: TDS (new)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	44	16
Number of Non-Detects	0	1
Number of Detect Data	44	15
Minimum Non-Detect	N/A	2.38
Maximum Non-Detect	N/A	2.38
Percent Non-detects	0.00%	6.25%
Minimum Detect	10	5.71
Maximum Detect	72	70
Mean of Detects	35.7	29.89
Median of Detects	32.5	27.1
SD of Detects	12.54	19.23

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Sample 1 = Mean/Median of Sample 2

Sample 1 Rank Sum W-Stat	1458
WMW U-Stat	468
Standardized WMW U-Stat	1.94
Mean (U)	352
SD(U) - Adj ties	59.79
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)	0.0524

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value >= alpha (0.05)

Appendix C
Background Threshold Values

Background Statistics for Uncensored Full Data Sets

User Selected Options

Date/Time of Computation	ProUCL 5.2 5/25/2023 11:21:44 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	4
Number of Bootstrap Operations	2000

Calcium

General Statistics

Total Number of Observations	59	Number of Distinct Observations	55
		Number of Missing Observations	1
Minimum	161	First Quartile	535.5
Second Largest	1510	Median	730
Maximum	1910	Third Quartile	884.5
Mean	747.2	SD	342
Coefficient of Variation	0.458	Skewness	0.938
Mean of logged Data	6.507	SD of logged Data	0.494

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.02	d2max (for USL)	3.021

Normal GOF Test

Shapiro Wilk Test Statistic	0.939	**Normal GOF Test**
1% Shapiro Wilk P Value	0.00797	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.111	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.133	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	1438	90% Percentile (z)	1186
	95% UPL (t)	1324	95% Percentile (z)	1310
	95% UPL for Next 4 Observations	**1541**	99% Percentile (z)	1543
	95% UPL for Mean of 4 Observations	1043	95% USL	1780

Gamma GOF Test

A-D Test Statistic	0.689	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.753	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.107	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.116	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.726	k star (bias corrected MLE)	4.497
Theta hat (MLE)	158.1	Theta star (bias corrected MLE)	166.2
nu hat (MLE)	557.6	nu star (bias corrected)	530.6
MLE Mean (bias corrected)	747.2	MLE Sd (bias corrected)	352.4

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		1414	90% Percentile	1219
95% Hawkins Wixley (HW) Approx. Gamma UPL		1438	95% Percentile	1405
95% WH UPL for Next 4 Observations		1778	99% Percentile	1799
95% HW UPL for Next 4 Observations		1837		
95% WH Approx. Gamma UTL with	95% Coverage	1599	95% HW Approx. Gamma UTL with 95% Coverage	1639
	95% WH USL	2246	95% HW USL	2368

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.957	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk P Value	0.0741	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.139	**Lilliefors Lognormal GOF Test**	

10% Lilliefors Critical Value	0.105	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	1817	90% Percentile (z)	1261
95% UPL (t)	1540	95% Percentile (z)	1509
95% UPL for Next 4 Observations	2107	99% Percentile (z)	2113
95% UPL for Mean of 4 Observations	1026	95% USL	2978

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	59	95% UTL with 95% Coverage	1910
Approx, f used to compute achieved CC	1.526	Approximate Actual Confidence Coefficient achieved by UTL	0.801
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	1550	95% BCA Bootstrap UTL with 95% Coverage	1550
95% UPL	1490	90% Percentile	1114
90% Chebyshev UPL	1782	95% Percentile	1409
95% Chebyshev UPL	2251	99% Percentile	1678
95% USL	1910		

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	60	Number of Distinct Observations	57
Minimum	2.14	First Quartile	4.96
Second Largest	9	Median	5.895
Maximum	10.8	Third Quartile	7.138
Mean	5.766	SD	1.941
Coefficient of Variation	0.337	Skewness	-0.262
Mean of logged Data	1.681	SD of logged Data	0.408

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.017	d2max (for USL)	3.027

Normal GOF Test

Shapiro Wilk Test Statistic	0.942	**Normal GOF Test**	
1% Shapiro Wilk P Value	0.0118	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.115	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.132	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	9.681	90% Percentile (z)	8.254
95% UPL (t)	9.037	95% Percentile (z)	8.959
95% UPL for Next 4 Observations	**10.27**	99% Percentile (z)	10.28
95% UPL for Mean of 4 Observations	7.441	95% USL	11.64

Gamma GOF Test

A-D Test Statistic	2.51	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.752	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.171	**Kolmogorov-Smirnov Gamma GOF Test**	

5% K-S Critical Value	0.115	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	7.207	k star (bias corrected MLE)	6.858
Theta hat (MLE)	0.8	Theta star (bias corrected MLE)	0.841
nu hat (MLE)	864.9	nu star (bias corrected)	823
MLE Mean (bias corrected)	5.766	MLE Sd (bias corrected)	2.202

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	9.862	90% Percentile	8.706
95% Hawkins Wixley (HW) Approx. Gamma UPL	10.03	95% Percentile	9.799
95% WH UPL for Next 4 Observations	11.96	99% Percentile	12.08
95% HW UPL for Next 4 Observations	12.32		
95% WH Approx. Gamma UTL with 95% Coverage	10.93	95% HW Approx. Gamma UTL with 95% Coverage	11.19
95% WH USL	14.63	95% HW USL	15.32

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.852	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk P Value	6.8656E-8	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.196	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.104	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	12.23	90% Percentile (z)	9.061
95% UPL (t)	10.68	95% Percentile (z)	10.51
95% UPL for Next 4 Observations	13.84	99% Percentile (z)	13.88
95% UPL for Mean of 4 Observations	7.638	95% USL	18.47

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	60	95% UTL with 95% Coverage	10.8
Approx, f used to compute achieved CC	1.553	Approximate Actual Confidence Coefficient achieved by UTL	0.808
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	9.09	95% BCA Bootstrap UTL with 95% Coverage	9.09
95% UPL	8.546	90% Percentile	8.02
90% Chebyshev UPL	11.64	95% Percentile	8.474
95% Chebyshev UPL	14.3	99% Percentile	9.738
95% USL	10.8		

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	60	Number of Distinct Observations	48
Minimum	3.44	First Quartile	4.33
Second Largest	5.11	Median	4.505
Maximum	5.43	Third Quartile	4.633
Mean	**4.459**	SD	0.347
Coefficient of Variation	0.0779	Skewness	-0.485
Mean of logged Data	1.492	SD of logged Data	0.0802

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.017	d2max (for USL)	3.027

Normal GOF Test

Shapiro Wilk Test Statistic	0.953	**Normal GOF Test**	
1% Shapiro Wilk P Value	0.047	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.127	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.132	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	5.16	90% Percentile (z)	4.904
95% UPL (t)	5.044	95% Percentile (z)	5.03
95% UPL for Next 4 Observations	**5.265**	99% Percentile (z)	5.267
95% UPL for Mean of 4 Observations	4.759	95% USL	5.51

Gamma GOF Test

A-D Test Statistic	1.577	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.748	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.137	**Kolmogorov-Smirnov Gamma GOF Test**	

5% K-S Critical Value	0.114	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	161.8	k star (bias corrected MLE)	153.7
Theta hat (MLE)	0.0276	Theta star (bias corrected MLE)	0.029
nu hat (MLE)	19416	nu star (bias corrected)	18447
MLE Mean (bias corrected)	4.459	MLE Sd (bias corrected)	0.36

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	5.072	90% Percentile	4.926
95% Hawkins Wixley (HW) Approx. Gamma UPL	5.076	95% Percentile	5.067
95% WH UPL for Next 4 Observations	5.32	99% Percentile	5.338
95% HW UPL for Next 4 Observations	5.328		
95% WH Approx. Gamma UTL with 95% Coverage	5.201	95% HW Approx. Gamma UTL with 95% Coverage	5.207
95% WH USL	5.607	95% HW USL	5.621

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.935	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk P Value	0.00458	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.144	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.104	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	5.226	90% Percentile (z)	4.927
95% UPL (t)	5.088	95% Percentile (z)	5.072
95% UPL for Next 4 Observations	5.354	99% Percentile (z)	5.357
95% UPL for Mean of 4 Observations	4.764	95% USL	5.666

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	60	95% UTL with 95% Coverage	5.43
Approx, f used to compute achieved CC	1.553	Approximate Actual Confidence Coefficient achieved by UTL	0.808
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	5.126	95% BCA Bootstrap UTL with 95% Coverage	5.11
95% UPL	4.98	90% Percentile	4.811
90% Chebyshev UPL	5.51	95% Percentile	4.98
95% Chebyshev UPL	5.985	99% Percentile	5.241
95% USL	5.43		

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 5/25/2023 11:26:26 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	4
Number of Bootstrap Operations	2000

TDS

General Statistics

Total Number of Observations	60	Number of Missing Observations	0
Number of Distinct Observations	40		
Number of Detects	59	Number of Non-Detects	1
Number of Distinct Detects	39	Number of Distinct Non-Detects	1
Minimum Detect	5.71	Minimum Non-Detect	2.38
Maximum Detect	72	Maximum Non-Detect	2.38
Variance Detected	212.3	Percent Non-Detects	1.667%
Mean Detected	34.23	SD Detected	14.57
Mean of Detected Logged Data	3.425	SD of Detected Logged Data	0.511

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.017	d2max (for USL)	3.027

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.961	**Normal GOF Test on Detected Observations Only**
1% Shapiro Wilk P Value	0.121	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.117	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.133	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	33.69	KM SD	14.9
95% UTL95% Coverage	63.74	95% KM UPL (t)	58.79
95% KM UPL for Next 4 Observations	68.24	95% KM UPL for Mean of Next 4 Observations	46.55
90% KM Percentile (z)	52.78	95% KM Percentile (z)	58.2
99% KM Percentile (z)	68.35	95% KM USL	78.78

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	33.68	SD	15.06
95% UTL95% Coverage	64.06	95% UPL (t)	59.06
95% UPL for Next 4 Observations	**68.61**	95% UPL for Mean of Next 4 Observations	46.67
90% Percentile (z)	52.98	95% Percentile (z)	58.45
99% Percentile (z)	68.72	95% USL	79.27

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	0.769	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.753	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.111	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.116	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)	4.792	k star (bias corrected MLE)	4.56
Theta hat (MLE)	7.142	Theta star (bias corrected MLE)	7.506
nu hat (MLE)	565.5	nu star (bias corrected)	538.1
MLE Mean (bias corrected)	34.23		
MLE Sd (bias corrected)	16.03	95% Percentile of Chisquare (2kstar)	17.09

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	5.71	Mean	33.79
Maximum	72	Median	32
SD	14.84	CV	0.439
k hat (MLE)	4.412	k star (bias corrected MLE)	4.203
Theta hat (MLE)	7.658	Theta star (bias corrected MLE)	8.039
nu hat (MLE)	529.5	nu star (bias corrected)	504.3
MLE Mean (bias corrected)	33.79	MLE Sd (bias corrected)	16.48
95% Percentile of Chisquare (2kstar)	16.08	90% Percentile	55.87
95% Percentile	64.65	99% Percentile	83.34

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	73.76	76.35	95% Approx. Gamma UPL	65.1	66.73
95% Gamma USL	104.8	112.1	95% UPL for Next 4 Observations	82.29	86

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	33.69	SD (KM)	14.9
Variance (KM)	221.9	SE of Mean (KM)	1.94
k hat (KM)	5.117	k star (KM)	4.872
nu hat (KM)	614	nu star (KM)	584.6
theta hat (KM)	6.585	theta star (KM)	6.916
80% gamma percentile (KM)	45.42	90% gamma percentile (KM)	54.14
95% gamma percentile (KM)	62.08	99% gamma percentile (KM)	78.9

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	76.05	79.63	95% Approx. Gamma UPL	66.77	69.08
95% KM Gamma Percentile	65.7	67.88	95% Gamma USL	109.5	119.2

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.908	**Shapiro Wilk GOF Test**
10% Shapiro Wilk P Value	1.4085E-4	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.146	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.105	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	33.8	Mean in Log Scale	3.404
SD in Original Scale	14.82	SD in Log Scale	0.533
95% UTL95% Coverage	88.12	95% BCA UTL95% Coverage	70
95% Bootstrap (%) UTL95% Coverage	70.1	95% UPL (t)	73.83
95% UPL for Next 4 Observations	103.5	95% UPL for Mean of 4 Observations	47.64
90% Percentile (z)	59.55	95% Percentile (z)	72.27
99% Percentile (z)	103.9	95% USL	151

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	3.382	95% KM UTL (Lognormal)95% Coverage	98.71
KM SD of Logged Data	0.6	95% KM UPL (Lognormal)	80.9
95% KM Percentile Lognormal (z)	78.97	95% KM USL (Lognormal)	180.9

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	33.68	Mean in Log Scale	3.371
SD in Original Scale	15.06	SD in Log Scale	0.658
95% UTL95% Coverage	109.7	95% UPL (t)	88.2
95% UPL for Next 4 Observations	133.9	95% UPL for Mean of 4 Observations	51.35
90% Percentile (z)	67.64	95% Percentile (z)	85.91

99% Percentile (z)	134.5	95% USL	213.3

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	59	95% UTL with95% Coverage	72
Approx, f used to compute achieved CC	1.553	Approximate Actual Confidence Coefficient achieved by UTL	0.808
Approximate Sample Size needed to achieve specified CC	59	95% UPL	63.8
95% USL	72	95% KM Chebyshev UPL	99.16

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 5/25/2023 11:46:41 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	4
Number of Bootstrap Operations	2000

Boron

General Statistics

Total Number of Observations	59	Number of Missing Observations	1
Number of Distinct Observations	23		
Number of Detects	19	Number of Non-Detects	40
Number of Distinct Detects	17	Number of Distinct Non-Detects	6
Minimum Detect	7.08	Minimum Non-Detect	13.1
Maximum Detect	58.5	Maximum Non-Detect	55.7
Variance Detected	198.9	Percent Non-Detects	67.8%
Mean Detected	16.17	SD Detected	14.1
Mean of Detected Logged Data	2.551	SD of Detected Logged Data	0.626

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.02	d2max (for USL)	3.021

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.646	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.863	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.361	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.229	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	12.98	KM SD	9.701
95% UTL95% Coverage	32.58	95% KM UPL (t)	29.34
95% KM UPL for Next 4 Observations	35.49	95% KM UPL for Mean of Next 4 Observations	21.36
90% KM Percentile (z)	25.42	95% KM Percentile (z)	28.94
99% KM Percentile (z)	35.55	95% KM USL	42.29

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	19.65	SD	9.165
95% UTL95% Coverage	38.17	95% UPL (t)	35.1
95% UPL for Next 4 Observations	40.92	95% UPL for Mean of Next 4 Observations	27.57
90% Percentile (z)	31.4	95% Percentile (z)	34.73
99% Percentile (z)	40.98	95% USL	47.34

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	2.228	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.751	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.332	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.201	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)	2.304	k star (bias corrected MLE)	1.975
Theta hat (MLE)	7.021	Theta star (bias corrected MLE)	8.189
nu hat (MLE)	87.54	nu star (bias corrected)	75.05
MLE Mean (bias corrected)	16.17		
MLE Sd (bias corrected)	11.51	95% Percentile of Chisquare (2kstar)	9.407

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	0.852	Mean	13.22
Maximum	58.5	Median	10.35
SD	10.13	CV	0.766
k hat (MLE)	2.117	k star (bias corrected MLE)	2.021
Theta hat (MLE)	6.242	Theta star (bias corrected MLE)	6.54
nu hat (MLE)	249.8	nu star (bias corrected)	238.5
MLE Mean (bias corrected)	13.22	MLE Sd (bias corrected)	9.297
95% Percentile of Chisquare (2kstar)	9.555	90% Percentile	25.64
95% Percentile	31.25	99% Percentile	43.67

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	37.01	38.53	95% Approx. Gamma UPL	31.3	32.09
95% Gamma USL	58.14	63.57	95% UPL for Next 4 Observations	42.69	45.07

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	12.98	SD (KM)	9.701
Variance (KM)	94.1	SE of Mean (KM)	1.654
k hat (KM)	1.791	k star (KM)	1.712
nu hat (KM)	211.4	nu star (KM)	202
theta hat (KM)	7.248	theta star (KM)	7.586
80% gamma percentile (KM)	19.79	90% gamma percentile (KM)	26.2
95% gamma percentile (KM)	32.38	99% gamma percentile (KM)	46.2

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	29.98	29.71	95% Approx. Gamma UPL	26.13	25.77
95% KM Gamma Percentile	25.69	25.32	95% Gamma USL	43.7	44.2

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.785	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.917	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.295	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.18	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	13.25	Mean in Log Scale	2.446
SD in Original Scale	9.012	SD in Log Scale	0.486
95% UTL95% Coverage	30.79	95% BCA UTL95% Coverage	41.04
95% Bootstrap (%) UTL95% Coverage	41.04	95% UPL (t)	26.17
95% UPL for Next 4 Observations	35.62	95% UPL for Mean of 4 Observations	17.55
90% Percentile (z)	21.5	95% Percentile (z)	25.66
99% Percentile (z)	35.72	95% USL	50.05

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.414	95% KM UTL (Lognormal)95% Coverage	29.02
KM SD of Logged Data	0.472	95% KM UPL (Lognormal)	24.78
95% KM Percentile Lognormal (z)	24.3	95% KM USL (Lognormal)	46.52

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	19.65	Mean in Log Scale	2.871
SD in Original Scale	9.165	SD in Log Scale	0.48
95% UTL95% Coverage	46.55	95% UPL (t)	39.64
95% UPL for Next 4 Observations	53.75	95% UPL for Mean of 4 Observations	26.73
90% Percentile (z)	32.66	95% Percentile (z)	38.87

99% Percentile (z)	53.9	95% USL	75.2

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	58	95% UTL with95% Coverage	58.5
Approx, f used to compute achieved CC	1.526	Approximate Actual Confidence Coefficient achieved by UTL	0.801
Approximate Sample Size needed to achieve specified CC	59	95% UPL	55.7
95% USL	**58.5**	95% KM Chebyshev UPL	55.63

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	60	Number of Missing Observations	0
Number of Distinct Observations	10		
Number of Detects	8	**Number of Non-Detects**	**52**
Number of Distinct Detects	6	Number of Distinct Non-Detects	4
Minimum Detect	0.036	Minimum Non-Detect	0.008
Maximum Detect	0.0739	Maximum Non-Detect	0.1
Variance Detected	1.6127E-4	Percent Non-Detects	86.67%
Mean Detected	0.0507	SD Detected	0.0127
Mean of Detected Logged Data	-3.007	SD of Detected Logged Data	0.244

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.017	d2max (for USL)	3.027

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.93	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.749	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.179	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.333	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	0.0139	KM SD	0.0154
95% UTL95% Coverage	0.0449	95% KM UPL (t)	0.0398
95% KM UPL for Next 4 Observations	0.0496	95% KM UPL for Mean of Next 4 Observations	0.0272
90% KM Percentile (z)	0.0336	95% KM Percentile (z)	0.0392
99% KM Percentile (z)	0.0497	95% KM USL	0.0605

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0184	SD	0.016
95% UTL95% Coverage	0.0507	95% UPL (t)	0.0454
95% UPL for Next 4 Observations	0.0555	95% UPL for Mean of Next 4 Observations	0.0322
90% Percentile (z)	0.0389	95% Percentile (z)	0.0447
99% Percentile (z)	0.0557	95% USL	0.0669

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	0.288	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.716	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.197	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.294	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)	19.13	k star (bias corrected MLE)	12.04
Theta hat (MLE)	0.00265	Theta star (bias corrected MLE)	0.00421
nu hat (MLE)	306.1	nu star (bias corrected)	192.6
MLE Mean (bias corrected)	0.0507		
MLE Sd (bias corrected)	0.0146	95% Percentile of Chisquare (2kstar)	36.52

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	0.0174
Maximum	0.0739	Median	0.01
SD	0.0146	CV	0.84
k hat (MLE)	2.525	k star (bias corrected MLE)	2.41

Theta hat (MLE)	0.0069	Theta star (bias corrected MLE)	0.00723
nu hat (MLE)	303.1	nu star (bias corrected)	289.2
MLE Mean (bias corrected)	0.0174	MLE Sd (bias corrected)	0.0112
95% Percentile of Chisquare (2kstar)	10.79	90% Percentile	0.0324
95% Percentile	0.039	99% Percentile	0.0534

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	0.0454	0.0453	95% Approx. Gamma UPL	0.0388	0.0384
95% Gamma USL	0.0698	0.0719	95% UPL for Next 4 Observations	0.0519	0.0523

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0139	SD (KM)	0.0154
Variance (KM)	2.3664E-4	SE of Mean (KM)	0.00216
k hat (KM)	0.816	k star (KM)	0.786
nu hat (KM)	97.9	nu star (KM)	94.34
theta hat (KM)	0.017	theta star (KM)	0.0177
80% gamma percentile (KM)	0.0227	90% gamma percentile (KM)	0.0339
95% gamma percentile (KM)	0.0454	99% gamma percentile (KM)	0.0724

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	0.04	0.0392	95% Approx. Gamma UPL	0.0335	0.0326
95% KM Gamma Percentile	0.0328	0.0319	95% Gamma USL	0.0647	0.0657

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.951	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.851	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.182	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.265	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	0.0206	Mean in Log Scale	-4.089
SD in Original Scale	0.0144	SD in Log Scale	0.638
95% UTL95% Coverage	0.0607	95% BCA UTL95% Coverage	0.06
95% Bootstrap (%) UTL95% Coverage	0.0607	95% UPL (t)	0.0491
95% UPL for Next 4 Observations	0.0736	95% UPL for Mean of 4 Observations	0.0291
90% Percentile (z)	0.038	95% Percentile (z)	0.0479
99% Percentile (z)	0.0739	95% USL	0.116

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-4.577	95% KM UTL (Lognormal)95% Coverage	0.0369
KM SD of Logged Data	0.634	95% KM UPL (Lognormal)	0.0299
95% KM Percentile Lognormal (z)	0.0292	95% KM USL (Lognormal)	0.07

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0184	Mean in Log Scale	-4.331
SD in Original Scale	0.016	SD in Log Scale	0.844
95% UTL95% Coverage	0.0722	95% UPL (t)	0.0546
95% UPL for Next 4 Observations	0.0932	95% UPL for Mean of 4 Observations	0.0272
90% Percentile (z)	0.0388	95% Percentile (z)	0.0527
99% Percentile (z)	0.0938	95% USL	0.169

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	59	95% UTL with95% Coverage	0.1
Approx, f used to compute achieved CC	1.553	Approximate Actual Confidence Coefficient achieved by UTL	0.808

Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.0732
95% USL	**0.1**	95% KM Chebyshev UPL	0.0815

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	59	Number of Missing Observations	1
Number of Distinct Observations	19		
Number of Detects	14	Number of Non-Detects	45
Number of Distinct Detects	14	Number of Distinct Non-Detects	5
Minimum Detect	0.205	Minimum Non-Detect	0.063
Maximum Detect	0.883	Maximum Non-Detect	0.362
Variance Detected	0.0508	Percent Non-Detects	76.27%
Mean Detected	0.527	SD Detected	0.225
Mean of Detected Logged Data	-0.731	SD of Detected Logged Data	0.452

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.02	d2max (for USL)	3.021

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.917	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.825	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.216	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.263	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	0.174	KM SD	0.224
95% UTL95% Coverage	0.627	95% KM UPL (t)	0.552
95% KM UPL for Next 4 Observations	0.694	95% KM UPL for Mean of Next 4 Observations	0.367
90% KM Percentile (z)	0.461	95% KM Percentile (z)	0.542
99% KM Percentile (z)	0.695	95% KM USL	0.851

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.171	SD	0.228
95% UTL95% Coverage	0.633	95% UPL (t)	0.556
95% UPL for Next 4 Observations	0.701	95% UPL for Mean of Next 4 Observations	0.368
90% Percentile (z)	0.464	95% Percentile (z)	0.547
99% Percentile (z)	0.702	95% USL	0.861

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	0.415	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.738	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.172	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.229	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)	5.662	k star (bias corrected MLE)	4.496
Theta hat (MLE)	0.0932	Theta star (bias corrected MLE)	0.117
nu hat (MLE)	158.5	nu star (bias corrected)	125.9
MLE Mean (bias corrected)	0.527		
MLE Sd (bias corrected)	0.249	95% Percentile of Chisquare (2kstar)	16.91

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	0.154
Maximum	0.883	Median	0.01
SD	0.241	CV	1.565
k hat (MLE)	0.469	k star (bias corrected MLE)	0.457
Theta hat (MLE)	0.328	Theta star (bias corrected MLE)	0.337
nu hat (MLE)	55.36	nu star (bias corrected)	53.88
MLE Mean (bias corrected)	0.154	MLE Sd (bias corrected)	0.228
95% Percentile of Chisquare (2kstar)	3.623	90% Percentile	0.424
95% Percentile	0.611	99% Percentile	1.073

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	0.75	0.804	95% Approx. Gamma UPL	0.561	0.576
95% Gamma USL	1.557	1.898	95% UPL for Next 4 Observations	0.952	1.062

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.174	SD (KM)	0.224
Variance (KM)	0.0502	SE of Mean (KM)	0.0303
k hat (KM)	0.601	k star (KM)	0.582
nu hat (KM)	70.91	nu star (KM)	68.64
theta hat (KM)	0.289	theta star (KM)	0.299
80% gamma percentile (KM)	0.286	90% gamma percentile (KM)	0.455
95% gamma percentile (KM)	0.632	99% gamma percentile (KM)	1.062

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	0.612	0.613	95% Approx. Gamma UPL	0.493	0.485
95% KM Gamma Percentile	0.479	0.471	95% Gamma USL	1.079	1.147

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.941	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.895	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.143	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.208	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	0.209	Mean in Log Scale	-1.994
SD in Original Scale	0.215	SD in Log Scale	0.932
95% UTL95% Coverage	0.896	95% BCA UTL95% Coverage	0.83
95% Bootstrap (%) UTL95% Coverage	0.83	95% UPL (t)	0.656
95% UPL for Next 4 Observations	1.185	95% UPL for Mean of 4 Observations	0.305
90% Percentile (z)	0.45	95% Percentile (z)	0.631
99% Percentile (z)	1.192	95% USL	2.277

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-2.278	95% KM UTL (Lognormal)95% Coverage	0.621
KM SD of Logged Data	0.892	95% KM UPL (Lognormal)	0.461
95% KM Percentile Lognormal (z)	0.444	95% KM USL (Lognormal)	1.516

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.171	Mean in Log Scale	-2.377
SD in Original Scale	0.228	SD in Log Scale	1.012
95% UTL95% Coverage	0.717	95% UPL (t)	0.511
95% UPL for Next 4 Observations	0.972	95% UPL for Mean of 4 Observations	0.222
90% Percentile (z)	0.34	95% Percentile (z)	0.49
99% Percentile (z)	0.978	95% USL	1.974

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	58	95% UTL with95% Coverage	0.883
Approx, f used to compute achieved CC	1.526	Approximate Actual Confidence Coefficient achieved by UTL	0.801
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.803
95% USL	**0.883**	95% KM Chebyshev UPL	1.159

Appendix F
Second Semiannual Detection Monitoring Program Statistical Evaluation

DOMINION ENERGY SOUTH CAROLINA

WATEREE STATION FLUE GAS DESULFURIZATION POND

SEMIANNUAL DETECTION MONITORING

RICHLAND COUNTY, SOUTH CAROLINA

CCR GROUNDWATER DETECTION MONITORING STATISTICAL ANALYSIS REPORT

For the

October 2023 Sampling Event

January 5, 2024

Joyce Peterson, P.E.
Senior Environmental Engineer

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

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Table of Contents

List of Tables

List of Appendices

Statistical Analysis Report

Background

In December 2022, Dominion Energy South Carolina (DESC) installed one new groundwater monitoring well upgradient to the northeast of the Flue Gas Desulfurization (FGD) Pond. The new monitoring well was 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 October 2023 (TRC, 2023a) to include the following monitoring wells:

- Background monitoring wells – AS-FGD-01, MW-FGD-01, and MW-FGD-06.
- Downgradient monitoring wells – MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05.

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 FGD Pond 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 October 26, 2023 (revised November 20, 2023), and the data validation report was received on December 4, 2023.

Statistical Analysis

Statistically Significant Increases (SSI) exceedances above background concentrations include the following:

- MW-FGD-02: boron
- MW-FGD-03: calcium
- MW-FGD-05: boron, calcium, chloride, and total dissolved solids (TDS)

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	BACKGROUND THRESHOLD VALUE	BASIS
Boron (µg/L)	24	100	Normal	21.9	95% UPL, k=16
Calcium (µg/L)	24	100	Normal	3,570	95% UPL, k=16
Chloride (mg/L)	24	100	Normal	11.5	95% UPL, k=16
Fluoride (mg/L)	24	54	Normal	0.109	95% KM UPL, k=16
pH (S.U.)	24	100	Nonnormal	4.1 – 5.5	95% LSL – 95% USL, k=16
Sulfate (mg/L)	24	100	Nonnormal	34.3	95% USL
TDS (mg/L)	24	83	Normal	70.8	95% KM UPL, k=16

pH expressed in standard units (S.U.).
TDS = Total dissolved solids.
µg/L = micrograms per liter.
mg/L = milligrams per liter.
KM = Kaplan-Meier statistical method.
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)
	21.9	**3,570**	**11.5**	**0.109**	**4.1 – 5.5**	**34.3**	**70.8**
BACKGROUND WELLS							
AS-FGD-01	8.29 J	1,050	7.51	< 0.0330	4.30	1.01	< 2.38
MW-FGD-01	7.30 J	928	6.56	< 0.0330	4.54	2.14	3.00 J
MW-FGD-06	10.4 J	1,300	5.65	< 0.0330	5.07	5.91	21.0
DOWNGRADIENT WELLS							
MW-FGD-02	43.8	2,090	7.13	0.0361 J	4.48	10.5	6.00 J
MW-FGD-03	14.8 J	6,870	6.60	0.0369 J	4.99	26.0	51.0
MW-FGD-04	15.0	2,980	10.2	< 0.0330	4.25	7.00	8.00 J
MW-FGD-05	35.0	18,900	13.4	< 0.0330	5.27	32.2	100

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

FLUE GAS DESULFURIZATION POND

RICHLAND COUNTY, SOUTH CAROLINA

BASELINE STATISTICAL EVALUATION REPORT

For the

January - August 2023 Baseline Sampling Events

December 15, 2023

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Project Manager

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Table of Contents

List of Tables

List of Figures

List of Appendices

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 are disposed of in the Flue Gas Desulfurization (FGD) Wastewater Pond (Unit). The Unit is used to manage wastewater generated from the FGD scrubber system at the Station. Management of the CCR in the Unit is performed in accordance with the national criteria established by the United States Environmental Protection Agency (USEPA) per Title 40 CFR, Part 257, Subpart D published in April 2015 (CCR Rule) and subsequent revisions. 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 Baseline Statistical Evaluation Report (Report) provides information for the baseline data evaluation of the CCR Groundwater Monitoring System 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 800 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-AP-01A, MW-BG-73, and MW-FGD-01.
- Downgradient monitoring wells – MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05.

In December 2022, DESC installed one new groundwater monitoring well (MW-FGD-06) upgradient to the northeast of the Unit. The new monitoring well was 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 – AS-FGD-01, MW-FGD-01, and MW-FGD-06.
- Downgradient monitoring wells – MW-FGD-02, MW-FGD-03, MW-FGD-04, and MW-FGD-05.

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-FGD-01	Upgradient	2	27	10
MW-FGD-06	Upgradient	2	25	10
AS-FGD-01	Upgradient	2	23	10
MW-FGD-02	Downgradient	2	18	10
MW-FGD-03	Downgradient	2	18	10
MW-FGD-04	Downgradient	2	18	10
MW-FGD-05	Downgradient	2	16	10

Section 2
Baseline Statistical Evaluation

Groundwater samples were collected from the new background monitoring well (MW-FGD-06) 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 CCR Rule 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 background concentrations for detection monitoring and/or assessment 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 constituents (ProUCL outputs for these are provided in **Appendix B**).
- The Appendix III data for background wells MW-FGD-01, MW-FGD-06, and AS-FGD-01 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). UPLs are calculated for k=16 future comparisons (four 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 a statistically significant increase (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 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 a potential outlier value was observed for TDS. The ProUCL outlier function was used to test whether the potential outlier value was statistically significant at the one percent level of significance. Based on the results, the outlier value was removed from the TDS data set before evaluating the background threshold value. The result of this outlier test is provided in **Appendix C**.

For calculation of background threshold values, the data sets for the three upgradient monitoring wells, AS-FGD-01, MW-FGD-01 and MW-FGD-06, were combined. **Table 3** provides a summary of the statistical results 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	21.9	95% UPL, k=16
Calcium (µg/L)	100	Normal	3,570	95% UPL, k=16
Chloride (mg/L)	100	Normal	11.5	95% UPL, k=16
Fluoride(mg/L)	54	Normal	0.109	95% KM UPL, k=16
pH (s.u.)	100	Nonnormal	4.1 – 5.5	95% LSL - 95% USL[1]
Sulfate (mg/L)	100	Nonnormal	34.3	95% USL[1]
TDS (mg/L)	83	Normal	70.8	95% KM UPL, k=16

[1] Upper statistical limit

2.2 Appendix IV Results

Baseline sampling included the 15 constituents comprising Appendix IV of the CCR Rule. The Appendix IV results for the background wells in the revised monitoring well network were used to estimate what GWPS would likely be applied in the event that the Unit were to transition to the assessment monitoring program. As set forth in the CCR Rule, GWPS default to established values 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 revised 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 are 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	153	2000	167.2	2000
Beryllium	96	0.828	4	0.841	4
Cadmium	16	0.670 J	5	0.0670	5
Chromium	4	1.54 J	100	1.54	100
Cobalt	100	3.02	6	2.893	6
Fluoride	54	116	4000	82.7	4000
Lead	75	2.71	15	2.631	15
Lithium	83	5.84 J	40	5.753	40
Mercury	0	NA	2	NC	2
Molybdenum	0	NA	100	NC	100
Radium 226/228	83	7.28	5.0	5.91	5.91
Selenium	0	NA	50	NC	50
Thallium	25	0.222 J	2	0.222	2

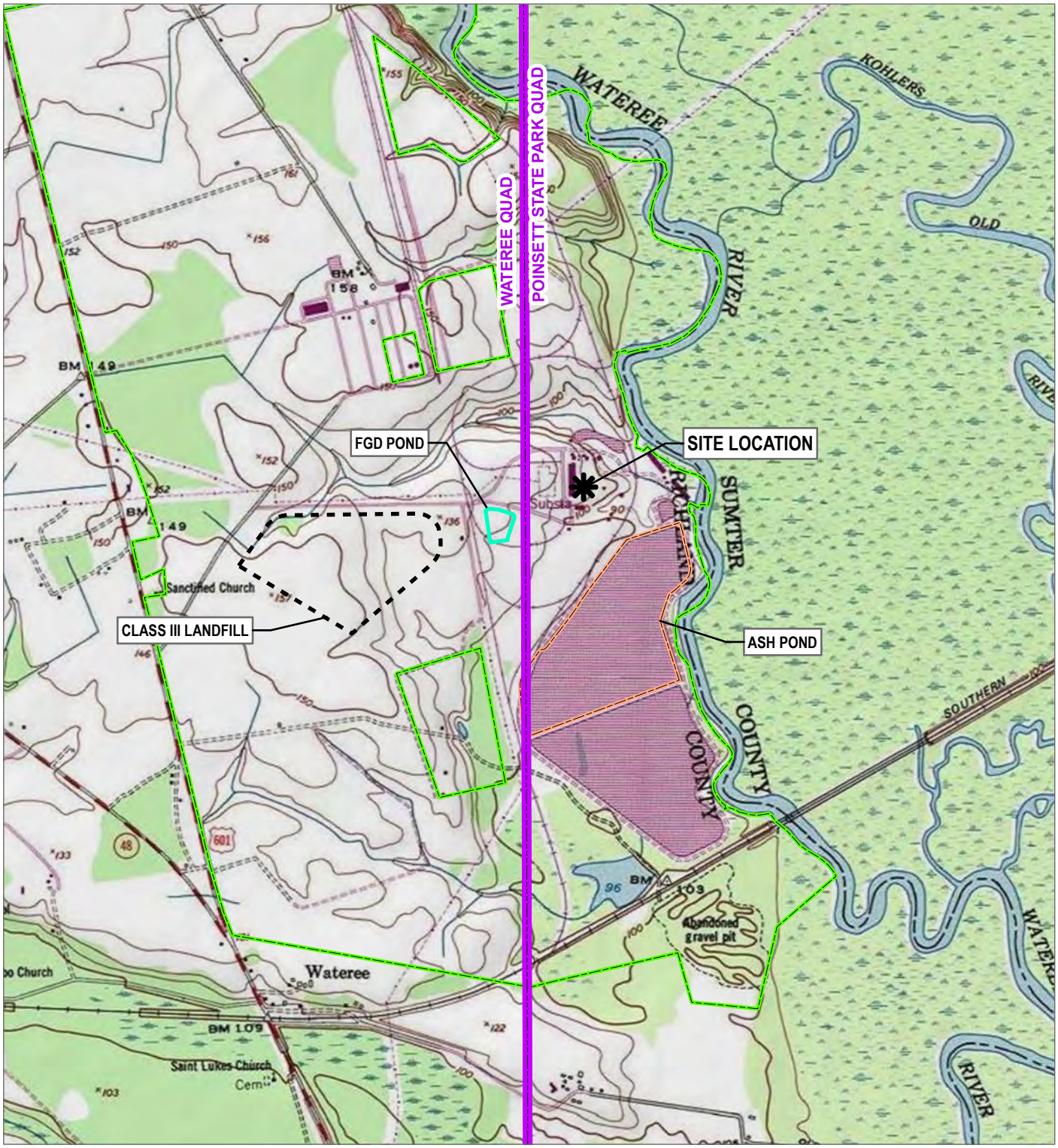
Radium 226/288 concentrations expressed in pCi/L (pico-Curies/liter)
Background and GWPS concentrations (except Radium 226/228) expressed in µg/L
J Quantitation is approximate due to limitations identified during data validation.
NA not analyzed
NC not calculated – 100% nondetect
[1] 40 CFR 257.95(h)

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. FGD Pond 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
- FGD POND BOUNDARY
- CLASS III LANDFILL
- ASH 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
FGD POND
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
- CCR ASD MONITORING WELL
- EVENT PIEZOMETER
- FGD POND BOUNDARY
- CLASS III LANDFILL

NOTES:

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

1:3,000
1" = 250'
0 125 250 FEET

PROJECT:
DESC WATEREE STATION
FGD POND
EASTOVER, SOUTH CAROLINA

TITLE:
CCR RULE COMPLIANCE
MONITORING WELL NETWORK

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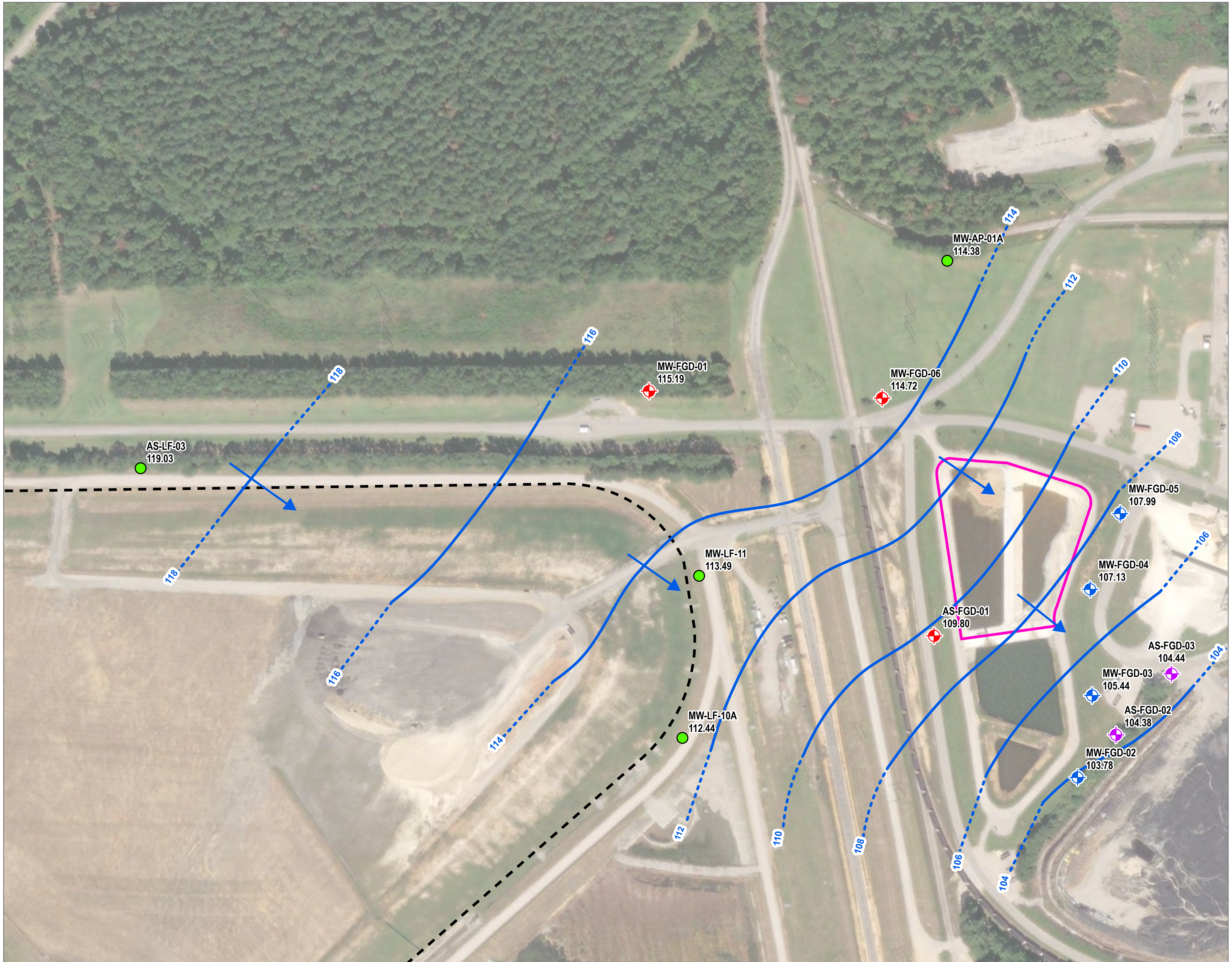

LEGEND

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

NOTES:

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

N

1:3,000
1" = 250'
0 125 250 FEET

PROJECT:	DESC WATEREE STATION FGD POND 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 Summary

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								
AS-FGD-01	1/12/2023	12.0 J	1280	8.05	0.0533 J	4.46	0.397 J	16.0
	2/13/2023	9.41 J	1230	8.52	< 0.0330	4.43	0.581	23.0
	3/13/2023	4.78 J	1170	8.54	< 0.0330	4.46	0.326 J	26.0
	4/10/2023	9.20 J	1110	8.28	< 0.0330	4.38	0.279 J	< 2.38
	5/15/2023	8.25 J	944	7.88	0.0551 J	4.20	0.745	14.0
	6/13/2023	7.88 J	969	7.39	0.0381 J	4.26	0.519	13.0
	7/17/2023	8.71 J	975	7.56	< 0.0330	4.08	1.10	10.0
	8/17/2023	6.92 J	1080	7.45	< 0.0330	4.09	0.534	3.00
MW-FGD-01	1/12/2023	11.8 J	1320	7.95	0.0560 J	4.49	0.818	16.0
	2/13/2023	9.70 J	1340	9.65	0.0354 J	4.45	1.30	23.0
	3/13/2023	7.56 J	1500	9.45	0.0672 J	4.42	0.962	14.0
	4/10/2023	9.45 J	2210	10.1	0.0443 J	4.66	0.618	4.00 J
	5/15/2023	7.34 J	1190	7.64	0.0369 J	4.38	1.53	< 2.38
	6/13/2023	7.78 J	971	5.97	< 0.0330	4.48	0.689	< 2.38
	7/17/2023	7.56 J	1000	5.89	< 0.0330	4.29	1.93	< 2.38
	8/17/2023	5.93 J	878	5.56	< 0.0330	4.33	1.27	3.00 J
MW-FGD-06	1/12/2023	21.8	2520	7.97	0.116	5.23	11.2	58.0
	2/13/2023	19.4	3810	7.72	< 0.0330	5.48	34.3	136
	3/13/2023	12.7 J	2120	6.45	0.0735 J	5.29	21.9	53.0
	4/10/2023	12.3 J	2070	6.28	0.0703 J	5.30	15.8	32.0
	5/15/2023	12.0 J	1840	5.95	0.0684 J	5.24	15.6	39.0
	6/13/2023	10.0 J	1700	5.86	0.0612 J	5.06	7.60	41.0
	7/17/2023	10.9 J	1610	5.93	< 0.0330	5.06	7.42	38.0
	8/17/2023	9.76	1580	5.62	< 0.0330	4.74	5.63	25.0

The orange-highlighted cell is the removed outlier.

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)
AS-FGD-01	1/12/2023	< 0.600	< 1.66	138	0.787	< 0.0300	< 1.00	2.82	0.0533 J	2.16	4.66 J	< 0.0670	< 0.167	4.62	< 1.50	< 0.144
	2/13/2023	< 0.600	< 1.66	142	0.817	0.0320 J	< 1.00	2.77	< 0.0330	2.08	4.40 J	< 0.0670	< 0.252	4.35	< 1.50	0.222 J
	3/13/2023	< 0.600	< 1.66	153	0.828	< 0.0300	< 1.00	3.02	< 0.0330	2.17	4.38 J	< 0.0670	< 0.167	7.28 J	< 1.50	0.131 J
	4/10/2023	< 0.600	< 1.66	137	0.578	< 0.0300	< 1.00	2.58	< 0.0330	1.72 J	3.84 J	< 0.108	< 0.167	3.13 J	< 1.50	< 0.125
	5/15/2023	< 0.600	< 1.66	131	0.658	0.0520 J	< 1.00	2.24	0.0551 J	1.95 J	3.39 J	< 0.0670	< 0.167	4.02 J	< 1.50	0.188 J
	6/13/2023	< 0.600	< 1.66	127	0.541	< 0.0300	< 1.00	2.48	0.0381 J	1.96 J	3.90 J	< 0.0670	< 0.0670	5.83 J	< 1.50	0.146 J
	7/17/2023	< 0.600	< 1.66	130	0.573	0.0670 J	< 1.00	2.25	< 0.0330	2.07	3.66 J	< 0.0670	< 0.167	2.84 J	< 1.50	0.151 J
	8/17/2023	< 0.600	< 1.66	124	0.665	< 0.0300	< 1.00	2.58	< 0.0330	1.91 J	3.81 J	< 0.0670	< 0.167	3.99	< 1.50	0.196 J
MW-FGD-01	1/12/2023	< 0.600	< 1.66	99.7	0.510	< 0.0300	< 1.00	1.53	0.0560 J	1.52 J	2.32 J	< 0.0670	< 0.167	3.13 J	< 1.50	< 0.125
	2/13/2023	< 0.600	< 1.66	108	0.498 J	< 0.0300	< 1.00	1.62	0.0354 J	1.49 J	2.74 J	< 0.0670	< 0.167	2.25 J	< 1.50	< 0.125
	3/13/2023	< 0.600	< 1.66	125	0.740	< 0.0300	< 1.00	1.86	0.0672 J	1.77 J	2.57 J	< 0.0670	< 0.167	2.91 J	< 1.50	< 0.125
	4/10/2023	< 0.600	< 1.66	129	0.629	< 0.0300	< 1.00	1.94	0.0443 J	2.29	3.19 J	< 0.114	< 0.167	2.92 J	< 1.50	< 0.334
	5/15/2023	< 0.600	< 1.66	87.7	0.440 J	< 0.0300	< 1.00	1.32	0.0369 J	1.26 J	< 2.00	< 0.0670	< 0.167	4.16 J	< 1.50	< 0.125
	6/13/2023	< 0.600	< 1.66	71.8	0.289 J	< 0.0300	< 1.00	1.13	< 0.0330	1.12 J	< 2.00	< 0.0670	< 0.167	2.69 J	< 1.50	< 0.125
	7/17/2023	< 0.600	< 1.66	74.0	0.385 J	< 0.0300	< 1.00	1.14	< 0.0330	1.13 J	< 2.00	< 0.0670	< 0.167	3.15 J	< 1.50	< 0.125
	8/17/2023	< 0.600	< 1.66	62.4	0.308 J	< 0.0300	< 1.00	0.998 J	< 0.0330	0.853 J	< 2.00	< 0.0670	< 0.167	3.52	< 1.50	< 0.125
MW-FGD-06	1/12/2023	< 0.600	< 1.66	28.8	0.251 J	< 0.0300	< 1.00	1.44	0.116	< 0.500	5.84 J	< 0.0670	< 0.167	2.04 J	< 1.50	< 0.125
	2/13/2023	< 0.600	< 1.66	38.3	0.693	< 0.0300	< 1.00	1.70	< 0.0330	2.71	5.09 J	< 0.0670	< 0.267	0.916 J	< 1.50	< 0.125
	3/13/2023	< 0.600	< 1.66	27.2	< 0.200	< 0.0300	< 1.00	1.28	0.0735 J	< 0.500	4.16 J	< 0.0670	< 0.167	< 1.27	< 1.50	< 0.125
	4/10/2023	< 0.600	< 1.66	31.4	0.227 J	< 0.0300	< 1.00	1.56	0.0703 J	< 0.500	4.68 J	< 0.102	< 0.167	< 1.53	< 1.50	< 0.125
	5/15/2023	< 0.600	< 1.66	30.5	0.208 J	< 0.0300	< 1.00	1.27	0.0684 J	< 0.500	4.03 J	< 0.0670	< 0.167	< 0.818	< 1.50	< 0.125
	6/13/2023	< 0.600	< 1.66	34.8	0.385 J	< 0.0300	< 1.00	1.47	0.0612 J	< 0.500	4.44 J	< 0.0670	< 0.167	< 0.0834	< 1.50	< 0.125
	7/17/2023	< 0.600	< 1.66	36.2	0.425 J	0.0400 J	< 1.00	1.42	< 0.0330	< 0.500	4.78 J	< 0.0670	< 0.167	2.33	< 1.50	< 0.125
	8/17/2023	< 0.600	< 1.66	34.5	0.388 J	< 0.0300	1.54 J	1.47	< 0.0330	0.533 J	5.81 J	< 0.0670	< 0.167	1.46 J	< 1.50	< 0.125

Appendix B
Summary of General Statistics

General Statistics on Uncensored Full Data (Appendix III Data)

Date/Time of Computation ProUCL 5.2 10/19/2023 11:55:39 AM

User Selected Options

From File Wateree_FGD_Pond_2023Q3_Baseline_ProUCL_Input.xls

Full Precision OFF

From File: Wateree_FGD_Pond_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	4.78	21.8	10.13	9.565	3.843	0.784	2.772	1.738	0.379
Calcium	24	0	878	3810	1517	1412	667.7	136.3	470.7	1.986	0.44
Chloride	24	0	5.56	10.1	7.403	7.288	1.336	0.273	1.549	0.266	0.18
Field pH	24	0	4.08	5.48	4.636	4.618	0.427	0.0871	0.297	0.698	0.092
Sulfate	24	0	0.279	34.3	5.544	1.904	8.588	1.753	1.046	2.153	1.549

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	7.046	7.56	7.725	9.43	11.85	12	12.58	18.4	21.25
Calcium	24	0	969.6	990	1060	1300	1735	1932	2183	2474	3513
Chloride	24	0	5.869	5.942	5.965	7.6	8.108	8.376	9.177	9.62	9.997
Field pH	24	0	4.218	4.314	4.368	4.46	5.06	5.128	5.275	5.299	5.439
Sulfate	24	0	0.434	0.562	0.609	1.185	7.465	9.04	15.74	20.99	31.45

General Statistics on Uncensored Data (Appendix III Data)

Date/Time of Computation ProUCL 5.2 10/19/2023 11:56:39 AM

User Selected Options

From File Wateree_FGD_Pond_2023Q3_Baseline_ProUCL_Input.xls

Full Precision OFF

From File: Wateree_FGD_Pond_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	13	11	45.83%	0.033	0.033	0.0474	4.0560E-4	0.0201	0.424
TDS	23	1	19	4	17.39%	2.38	2.38	20.02	270	16.43	0.821

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	13	0	0.0354	0.116	0.0597	0.056	4.5804E-4	0.0214	0.0184	1.442	0.359
TDS	19	1	3	58	23.74	23	261.3	16.17	14.83	0.666	0.681

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	0.0362	0.0573	0.0636	0.0697	0.073	0.106
TDS	23	1	2.38	3	3.5	16	29	35.6	40.6	51.8	56.9

General Statistics on Uncensored Full Data

Date/Time of Computation ProUCL 5.2 11/6/2023 11:04:53 AM

User Selected Options

From File WorkSheet.xls

Full Precision OFF

From File: WorkSheet.xls

General Statistics for Uncensored Data Sets

Variable	NumObs	# Missing	Minimum	Maximum	Mean	Geo-Mean	SD	SEM	MAD/0.675	Skewness	CV
Barium	24	0	27.2	153	87.55	73.86	45.55	9.298	59.75	-0.133	0.52
Cobalt	24	0	0.998	3.02	1.829	1.737	0.609	0.124	0.497	0.585	0.333

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
Barium	24	0	30.77	34.68	35.85	93.7	129.3	130.4	137.7	141.4	150.5
Cobalt	24	0	1.179	1.304	1.395	1.59	2.308	2.52	2.713	2.813	2.974

General Statistics on Uncensored Data

Date/Time of Computation ProUCL 5.2 11/6/2023 11:06:55 AM

User Selected Options

From File WorkSheet.xls

Full Precision OFF

From File: WorkSheet.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	23	1	4.17%	0.2	0.2	0.501	0.0379	0.195	0.388
Fluoride	24	0	13	11	45.83%	0.033	0.033	0.0474	4.0527E-4	0.0201	0.424
Lead	24	0	18	6	25.00%	0.5	0.5	1.404	0.492	0.701	0.5
Lithium	24	0	20	4	16.67%	2	2	3.737	1.329	1.153	0.308
Radium-226/228	24	0	20	4	16.67%	0.0834	1.53	2.86	3.045	1.745	0.61

General Statistics for Raw Data Sets using Detected Data Only

Variable	NumObs	# Missing	Minimum	Maximum	Mean	Median	Var	SD	MAD/0.675	Skewness	CV
Beryllium	23	0	0.208	0.828	0.514	0.51	0.037	0.192	0.219	0.0469	0.374
Fluoride	13	0	0.0354	0.116	0.0597	0.056	4.5780E-4	0.0214	0.0184	1.445	0.359
Lead	18	0	0.533	2.71	1.705	1.84	0.31	0.557	0.482	-0.451	0.327
Lithium	20	0	2.32	5.84	4.085	4.095	0.916	0.957	0.852	-0.0108	0.234
Radium-226/228	20	0	0.916	7.28	3.377	3.13	2.127	1.458	1.29	0.951	0.432

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	0.234	0.3	0.366	0.504	0.66	0.676	0.773	0.813	0.825
Fluoride	24	0	0.033	0.033	0.033	0.0362	0.0573	0.0635	0.0697	0.073	0.106
Lead	24	0	0.5	0.5	0.525	1.505	1.988	2.074	2.167	2.272	2.613
Lithium	24	0	2	2.47	2.698	3.87	4.495	4.668	4.997	5.702	5.833
Radium-226/228	24	0	1.022	1.502	1.913	2.915	3.998	4.076	4.539	5.649	6.947

Appendix C
Background Evaluation ProUCL Outputs

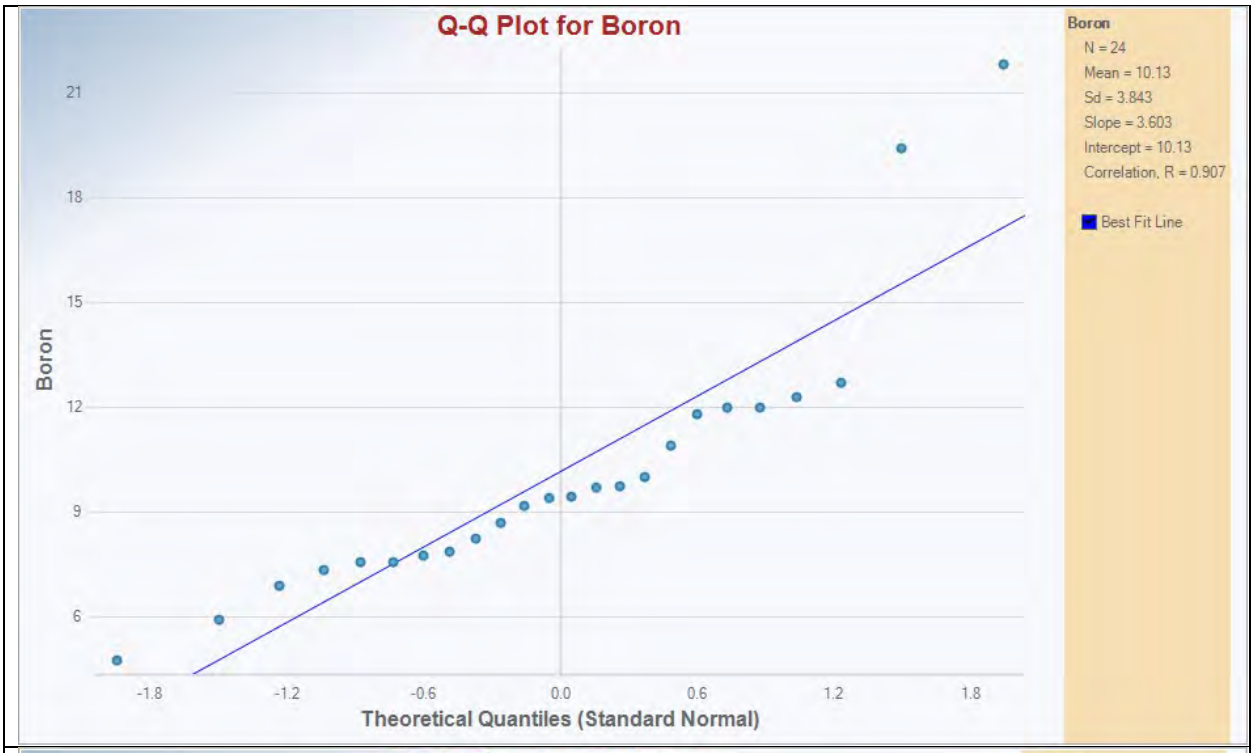
Appendix III Constituents

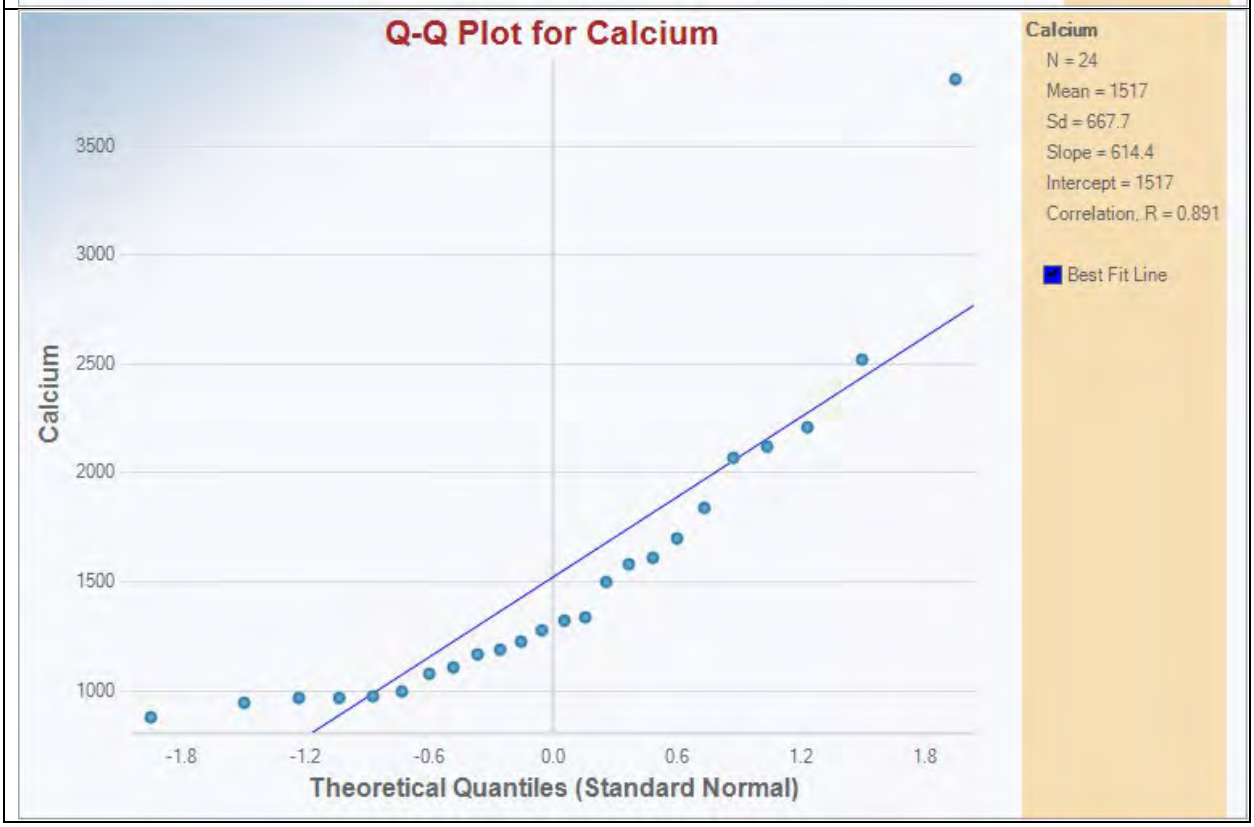
- Outliers
- Background Threshold Values

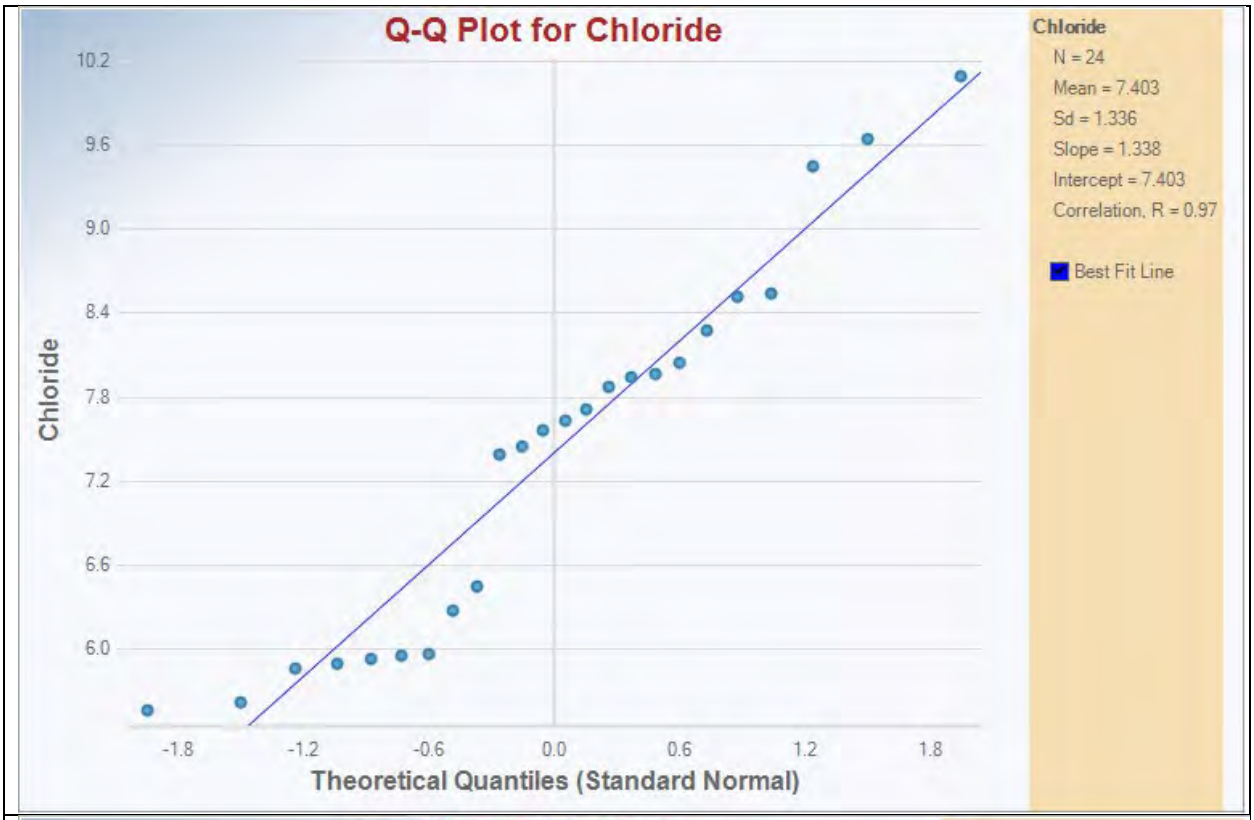
Appendix IV Constituents

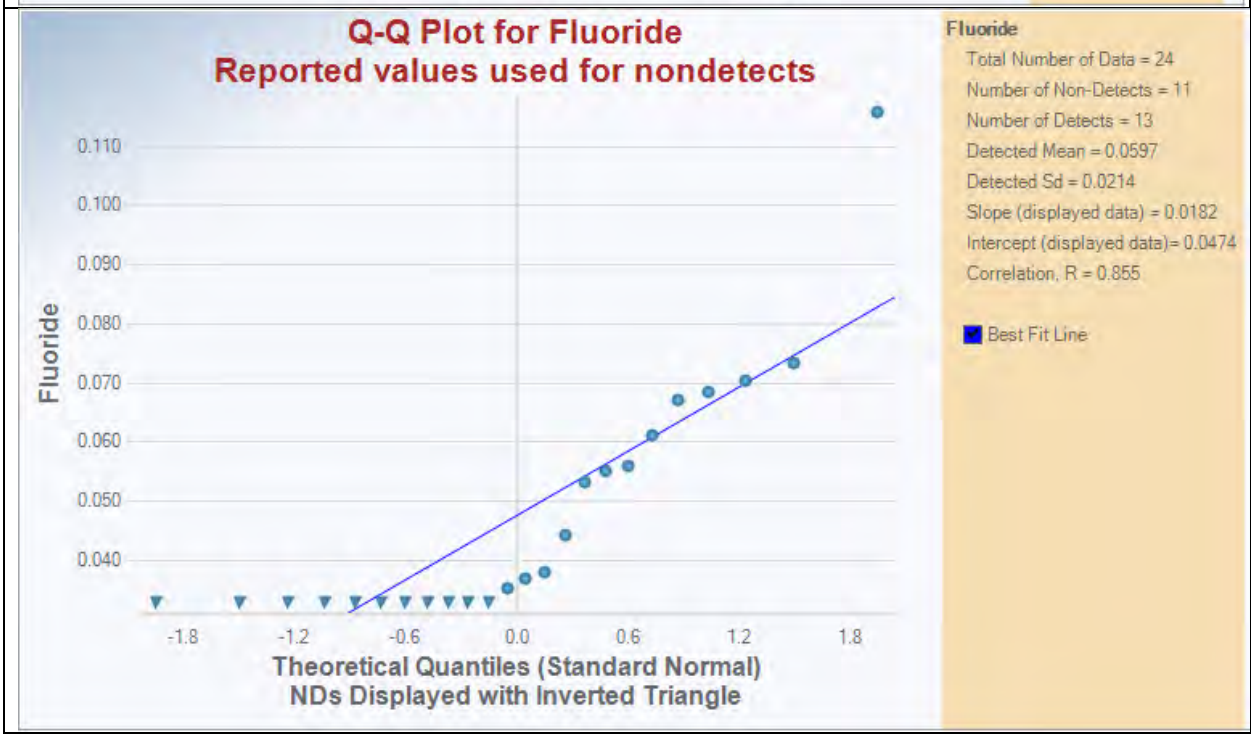
- Outliers
- Background Threshold Values

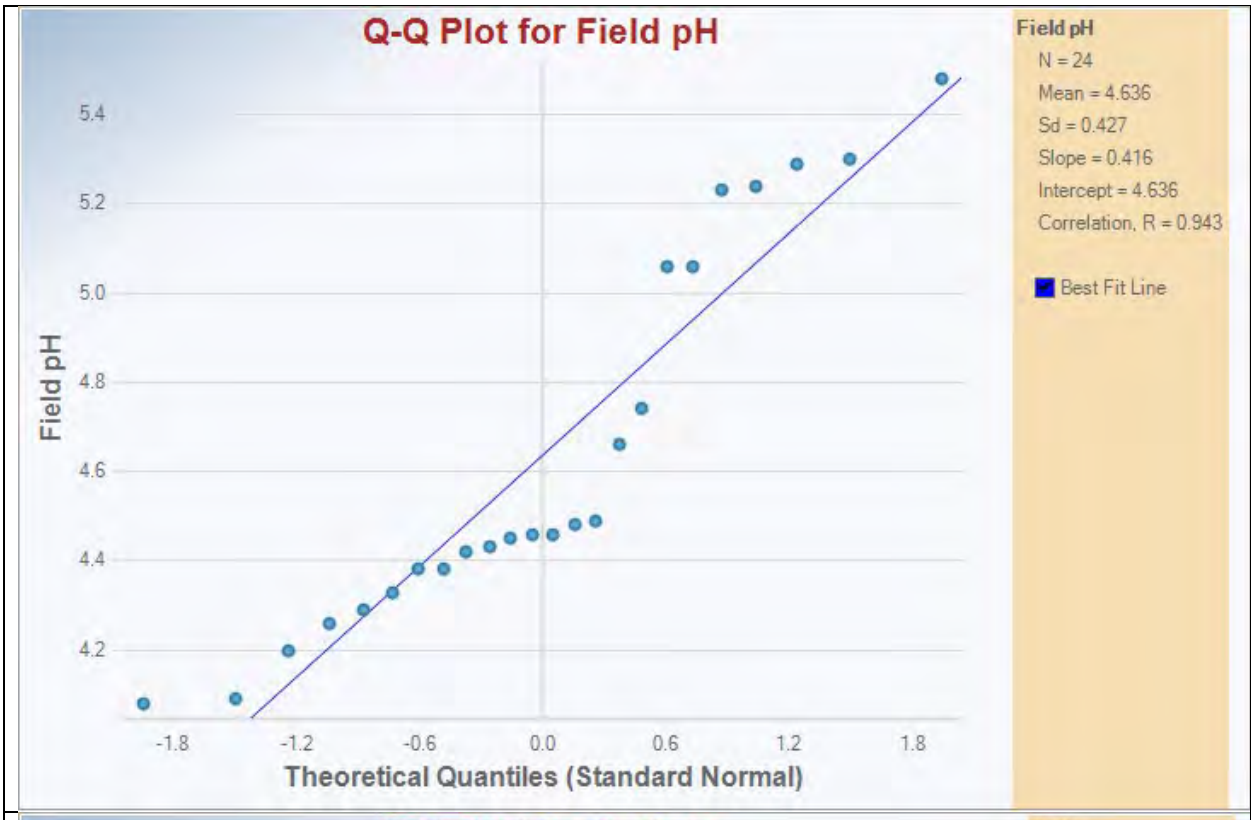
Appendix III Constituents

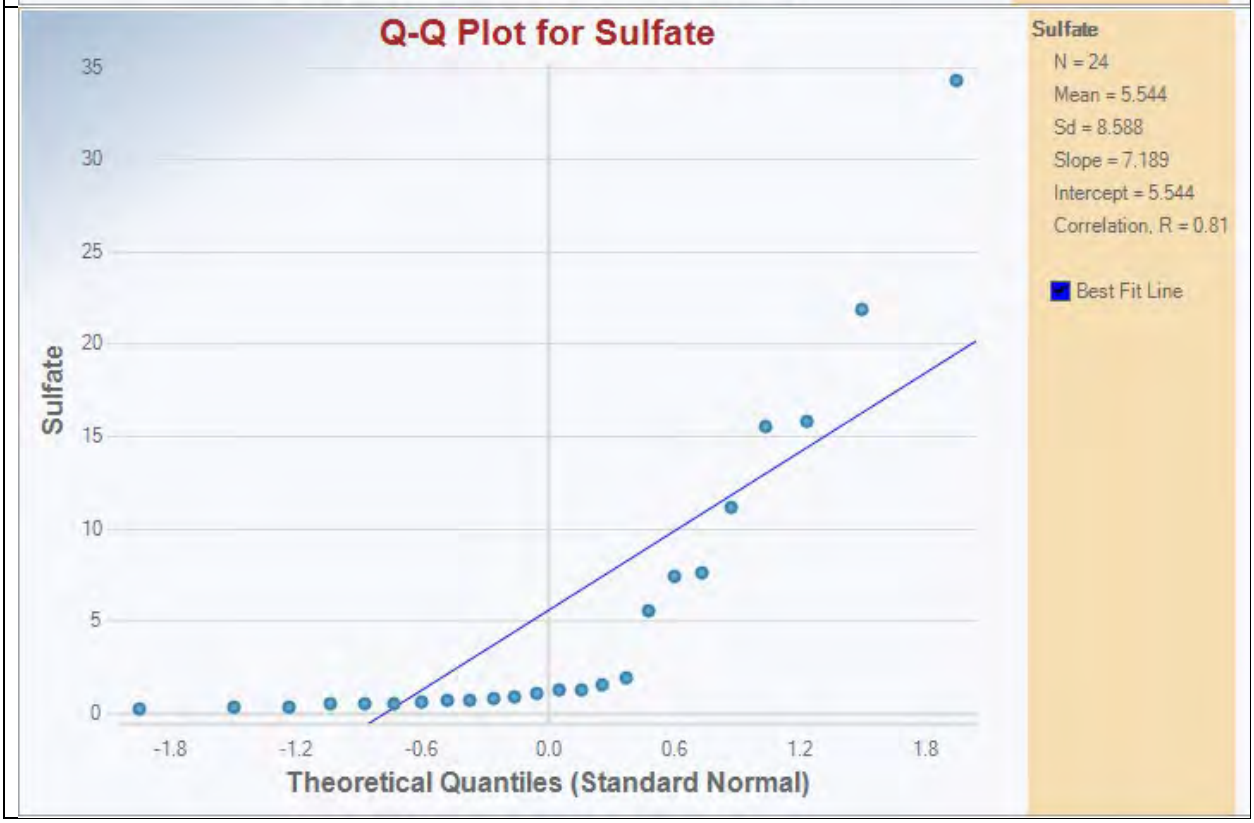

Q-Q Plot for Boron
Boron
N = 24
Mean = 10.13
Sd = 3.843
Slope = 3.603
Intercept = 10.13
Correlation, R = 0.907
Best Fit Line
21
18
15
12
9
6
Boron
-1.8
-1.2
-0.6
0.0
0.6
1.2
1.8
Theoretical Quantiles (Standard Normal)

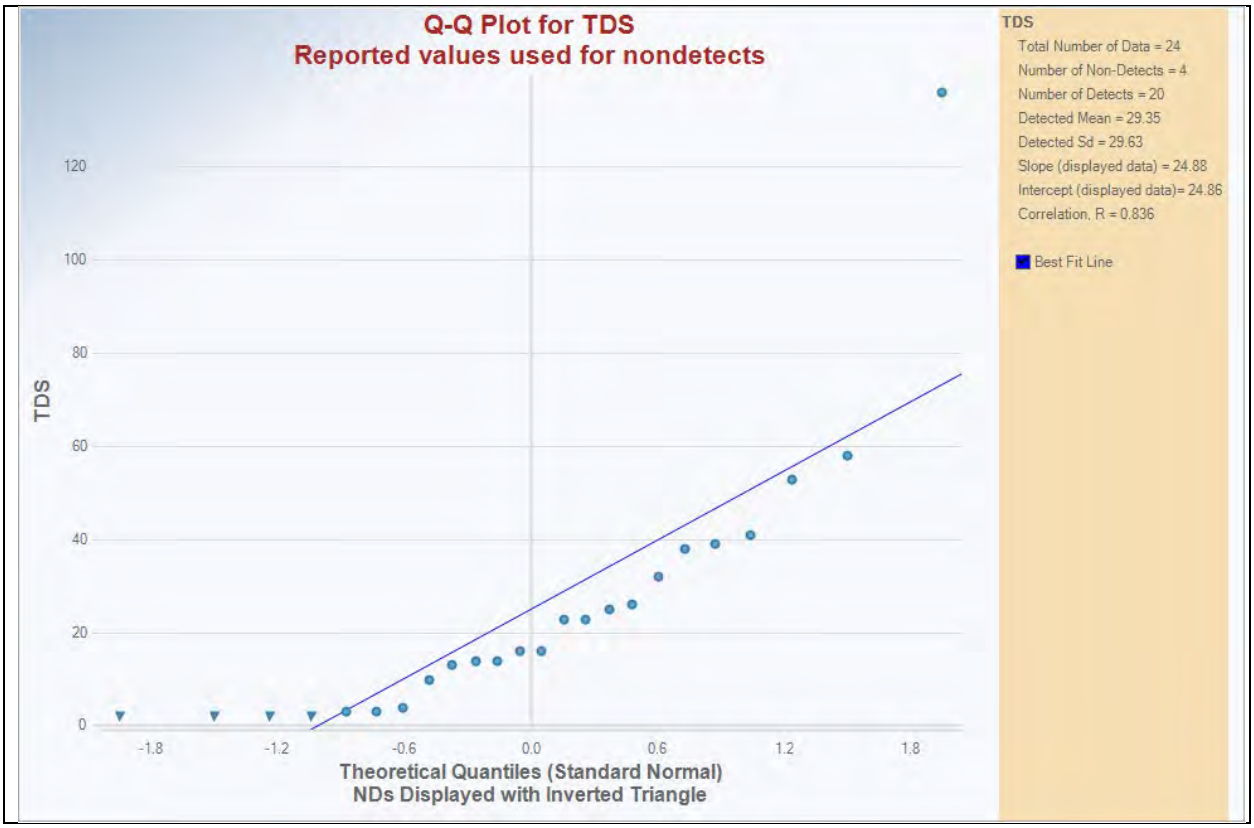

Q-Q Plot for Calcium
Calcium
N = 24
Mean = 1517
Sd = 667.7
Slope = 614.4
Intercept = 1517
Correlation, R = 0.891
Best Fit Line
3500
3000
2500
2000
1500
1000
Calcium
-1.8
-1.2
-0.6
0.0
0.6
1.2
1.8
Theoretical Quantiles (Standard Normal)


Q-Q Plot for Chloride
Chloride
N = 24
Mean = 7.403
Sd = 1.336
Slope = 1.338
Intercept = 7.403
Correlation, R = 0.97
Best Fit Line
Chloride
10.2
9.6
9.0
8.4
7.8
7.2
6.6
6.0
-1.8
-1.2
-0.6
0.0
0.6
1.2
1.8
Theoretical Quantiles (Standard Normal)


Q-Q Plot for Fluoride
Reported values used for nondetects
Fluoride
Total Number of Data = 24
Number of Non-Detects = 11
Number of Detects = 13
Detected Mean = 0.0597
Detected Sd = 0.0214
Slope (displayed data) = 0.0182
Intercept (displayed data)= 0.0474
Correlation, R = 0.855
Best Fit Line
Fluoride
0.110
0.100
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


Q-Q Plot for Field pH
Field pH
N = 24
Mean = 4.636
Sd = 0.427
Slope = 0.416
Intercept = 4.636
Correlation, R = 0.943
Best Fit Line
Field pH
5.4
5.2
5.0
4.8
4.6
4.4
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 = 5.544
Sd = 8.588
Slope = 7.189
Intercept = 5.544
Correlation, R = 0.81
Best Fit Line
Sulfate
35
30
25
20
15
10
5
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
Total Number of Data = 24
Number of Non-Detects = 4
Number of Detects = 20
Detected Mean = 29.35
Detected Sd = 29.63
Slope (displayed data) = 24.88
Intercept (displayed data)= 24.86
Correlation, R = 0.836
Best Fit Line
TDS
120
100
80
60
40
20
0
-1.8
-1.2
-0.6
0.0
0.6
1.2
1.8
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle

Outlier Tests for Selected Uncensored Variables

User Selected Options

Date/Time of Computation	ProUCL 5.2 10/20/2023 2:07:25 PM
From File	Wateree_FGD_Pond_Data_Summary_Table_JC_g.xls
Full Precision	OFF

Dixon's Outlier Test for TDS

Number of Observations = 24

10% critical value: 0.367

5% critical value: 0.413

1% critical value: 0.497

1. Observation Value 136 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.621

For 10% significance level, 136 is an outlier.

For 5% significance level, 136 is an outlier.

For 1% significance level, 136 is an outlier.

2. Observation Value 2.38 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 2.38 is not an outlier.

For 5% significance level, 2.38 is not an outlier.

For 1% significance level, 2.38 is not an outlier.

Background Statistics for Uncensored Full Data Sets

User Selected Options

Date/Time of Computation	ProUCL 5.2 10/19/2023 11:40:07 AM
From File	P:\Clients\Dominion\South Carolina Sites\5_Wateree Station SC\FGD Pond - CCR\2023\2023 Q3\New Baseline Evaluation\Wateree_FGD_Pond_2023Q3_Baseline_ProUCL_Input.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	16
Number of Bootstrap Operations	2000

Boron

General Statistics

Total Number of Observations	24	Number of Distinct Observations	22
Minimum	4.78	First Quartile	7.725
Second Largest	19.4	Median	9.43
Maximum	21.8	Third Quartile	11.85
Mean	10.13	SD	3.843
Coefficient of Variation	0.379	Skewness	1.738
Mean of logged Data	2.258	SD of logged Data	0.336

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	0.835	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.884	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.18	**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	19	90% Percentile (z)	15.06
95% UPL (t)	16.85	95% Percentile (z)	16.45
95% UPL for Next 16 Observations	**21.93**	99% Percentile (z)	19.07
95% UPL for Mean of 16 Observations	12.26	95% USL	20.29

Gamma GOF Test

A-D Test Statistic	0.621	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.745	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.137	**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)	8.863	k star (bias corrected MLE)	7.783
Theta hat (MLE)	1.143	Theta star (bias corrected MLE)	1.302
nu hat (MLE)	425.4	nu star (bias corrected)	373.6
MLE Mean (bias corrected)	10.13	MLE Sd (bias corrected)	3.631

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	16.94	90% Percentile	14.97
95% Hawkins Wixley (HW) Approx. Gamma UPL	16.99	95% Percentile	16.75
95% WH UPL for Next 16 Observations	24.27	99% Percentile	20.43
95% HW UPL for Next 16 Observations	24.77		
95% WH Approx. Gamma UTL with 95% Coverage	19.83	95% HW Approx. Gamma UTL with 95% Coverage	20.02
95% WH USL	21.71	95% HW USL	22.01

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.955	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.93	Data appear Lognormal at 10% Significance Level

Lilliefors Test Statistic	0.116	**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	20.78	90% Percentile (z)	14.71
95% UPL (t)	17.22	95% Percentile (z)	16.62
95% UPL for Next 16 Observations	26.85	99% Percentile (z)	20.9
95% UPL for Mean of 16 Observations	11.52	95% USL	23.25

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	21.8
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	21.8	95% BCA Bootstrap UTL with 95% Coverage	21.8
95% UPL	21.2	90% Percentile	12.58
90% Chebyshev UPL	21.9	95% Percentile	18.4
95% Chebyshev UPL	27.23	99% Percentile	21.25
95% USL	21.8		

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	878	First Quartile	1060
Second Largest	2520	Median	1300
Maximum	3810	Third Quartile	1735
Mean	1517	SD	667.7
Coefficient of Variation	0.44	Skewness	1.986
Mean of logged Data	7.253	SD of logged Data	0.369

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	0.805	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.884	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.188	**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	3059	90% Percentile (z)	2373
95% UPL (t)	2685	95% Percentile (z)	2616
95% UPL for Next 16 Observations	**3568**	99% Percentile (z)	3071
95% UPL for Mean of 16 Observations	1887	95% USL	3283

Gamma GOF Test

A-D Test Statistic	0.735	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.745	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.162	**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)	7.092	k star (bias corrected MLE)	6.233
Theta hat (MLE)	214	Theta star (bias corrected MLE)	243.4
nu hat (MLE)	340.4	nu star (bias corrected)	299.2
MLE Mean (bias corrected)	1517	MLE Sd (bias corrected)	607.8

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2668	90% Percentile	2330
95% Hawkins Wixley (HW) Approx. Gamma UPL	2672	95% Percentile	2635
95% WH UPL for Next 16 Observations	3953	99% Percentile	3275
95% HW UPL for Next 16 Observations	4037		
95% WH Approx. Gamma UTL with 95% Coverage	3171	95% HW Approx. Gamma UTL with 95% Coverage	3199
95% WH USL	3501	95% HW USL	3549

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.926	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.93	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.14	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.162	Data appear Lognormal at 10% Significance Level	

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	3308	90% Percentile (z)	2265
95% UPL (t)	2691	95% Percentile (z)	2589
95% UPL for Next 16 Observations	4382	99% Percentile (z)	3329
95% UPL for Mean of 16 Observations	1731	95% USL	3743

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	3810
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	3810	95% BCA Bootstrap UTL with 95% Coverage	3810
95% UPL	3488	90% Percentile	2183
90% Chebyshev UPL	3562	95% Percentile	2474
95% Chebyshev UPL	4488	99% Percentile	3513
95% USL	3810		

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	24
Minimum	5.56	First Quartile	5.965
Second Largest	9.65	Median	7.6
Maximum	10.1	Third Quartile	8.108
Mean	7.403	SD	1.336
Coefficient of Variation	0.18	Skewness	0.266
Mean of logged Data	1.986	SD of logged Data	0.181

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	0.929	**Shapiro Wilk GOF Test**	

1% Shapiro Wilk Critical Value	0.884	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.15	**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	10.49	90% Percentile (z)	9.114
95% UPL (t)	9.739	95% Percentile (z)	9.599
95% UPL for Next 16 Observations	**11.5**	99% Percentile (z)	10.51
95% UPL for Mean of 16 Observations	8.141	95% USL	10.93

Gamma GOF Test

A-D Test Statistic	0.708	**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	0.16	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.177	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	32.18	k star (bias corrected MLE)	28.18
Theta hat (MLE)	0.23	Theta star (bias corrected MLE)	0.263
nu hat (MLE)	1544	nu star (bias corrected)	1353
MLE Mean (bias corrected)	7.403	MLE Sd (bias corrected)	1.394

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	9.895	90% Percentile	9.236
95% Hawkins Wixley (HW) Approx. Gamma UPL	9.919	95% Percentile	9.835
95% WH UPL for Next 16 Observations	12.19	99% Percentile	11.03
95% HW UPL for Next 16 Observations	12.31		
95% WH Approx. Gamma UTL with 95% Coverage	10.83	95% HW Approx. Gamma UTL with 95% Coverage	10.88

95% WH USL	11.41	95% HW USL	11.49

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.926	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.93	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.157	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.162	Data appear Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	11.06	90% Percentile (z)	9.188
95% UPL (t)	9.999	95% Percentile (z)	9.812
95% UPL for Next 16 Observations	12.7	99% Percentile (z)	11.1
95% UPL for Mean of 16 Observations	8.054	95% USL	11.75

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	10.1
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	10.1	95% BCA Bootstrap UTL with 95% Coverage	10.1
95% UPL	9.988	90% Percentile	9.177
90% Chebyshev UPL	11.49	95% Percentile	9.62
95% Chebyshev UPL	13.34	99% Percentile	9.997
95% USL	10.1		

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.

Field pH

General Statistics

Total Number of Observations	24	Number of Distinct Observations	21
Minimum	**4.08**	First Quartile	4.368
Second Largest	5.3	Median	4.46
Maximum	5.48	Third Quartile	5.06
Mean	4.636	SD	0.427
Coefficient of Variation	0.092	Skewness	0.698
Mean of logged Data	1.53	SD of logged Data	0.0898

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	0.877	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.884	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.259	**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	5.621	90% Percentile (z)	5.182
95% UPL (t)	5.382	95% Percentile (z)	5.337
95% UPL for Next 16 Observations	5.946	99% Percentile (z)	5.628
95% UPL for Mean of 16 Observations	4.872	95% USL	5.763

Gamma GOF Test

A-D Test Statistic	1.259	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.742	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.254	**Kolmogorov-Smirnov Gamma GOF Test**	

5% K-S Critical Value	0.177	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	127.5	k star (bias corrected MLE)	111.6
Theta hat (MLE)	0.0364	Theta star (bias corrected MLE)	0.0416
nu hat (MLE)	6118	nu star (bias corrected)	5355
MLE Mean (bias corrected)	4.636	MLE Sd (bias corrected)	0.439

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	5.395	90% Percentile	5.206
95% Hawkins Wixley (HW) Approx. Gamma UPL	5.397	95% Percentile	5.381
95% WH UPL for Next 16 Observations	6.033	99% Percentile	5.718
95% HW UPL for Next 16 Observations	6.045		
95% WH Approx. Gamma UTL with 95% Coverage	5.66	95% HW Approx. Gamma UTL with 95% Coverage	5.665
95% WH USL	5.822	95% HW USL	5.83

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.89	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.93	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.248	**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	5.682	90% Percentile (z)	5.181
95% UPL (t)	5.403	95% Percentile (z)	5.353
95% UPL for Next 16 Observations	6.085	99% Percentile (z)	5.691
95% UPL for Mean of 16 Observations	4.853	95% USL	5.855

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	5.48
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	5.48	95% BCA Bootstrap UTL with 95% Coverage	5.48
95% UPL	5.435	90% Percentile	5.275
90% Chebyshev UPL	5.942	95% Percentile	5.299
95% Chebyshev UPL	6.533	99% Percentile	5.439
95% USL	**5.48**		

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	24	Number of Distinct Observations	24
Minimum	0.279	First Quartile	0.609
Second Largest	21.9	Median	1.185
Maximum	34.3	Third Quartile	7.465
Mean	5.544	SD	8.588
Coefficient of Variation	1.549	Skewness	2.153
Mean of logged Data	0.644	SD of logged Data	1.479

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	0.666	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.884	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.33	**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	25.37	90% Percentile (z)	16.55
95% UPL (t)	20.57	95% Percentile (z)	19.67
95% UPL for Next 16 Observations	31.92	99% Percentile (z)	25.52
95% UPL for Mean of 16 Observations	10.29	95% USL	28.25

Gamma GOF Test

A-D Test Statistic	1.678	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.799	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.259	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.187	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.581	k star (bias corrected MLE)	0.536
Theta hat (MLE)	9.544	Theta star (bias corrected MLE)	10.34
nu hat (MLE)	27.88	nu star (bias corrected)	25.73
MLE Mean (bias corrected)	5.544	MLE Sd (bias corrected)	7.572

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	20.56	90% Percentile	14.78
95% Hawkins Wixley (HW) Approx. Gamma UPL	21.11	95% Percentile	20.77
95% WH UPL for Next 16 Observations	52.72	99% Percentile	35.42
95% HW UPL for Next 16 Observations	62.54		
95% WH Approx. Gamma UTL with 95% Coverage	31.77	95% HW Approx. Gamma UTL with 95% Coverage	34.67
95% WH USL	40.11	95% HW USL	45.41

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.895	**Shapiro Wilk Lognormal GOF Test**	

10% Shapiro Wilk Critical Value	0.93	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.185	**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	57.88	90% Percentile (z)	12.67
95% UPL (t)	25.29	95% Percentile (z)	21.68
95% UPL for Next 16 Observations	178.8	99% Percentile (z)	59.39
95% UPL for Mean of 16 Observations	4.314	95% USL	94.98

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	34.3
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	34.3	95% BCA Bootstrap UTL with 95% Coverage	34.3
95% UPL	31.2	90% Percentile	15.74
90% Chebyshev UPL	31.84	95% Percentile	20.99
95% Chebyshev UPL	43.75	99% Percentile	31.45
95% USL	**34.3**		

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 10/19/2023 11:44:49 AM
From File	Wateree_FGD_Pond_2023Q3_Baseline_ProUCL_Input.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	16
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	13	Number of Non-Detects	11
Number of Distinct Detects	13	Number of Distinct Non-Detects	1
Minimum Detect	0.0354	Minimum Non-Detect	0.033
Maximum Detect	0.116	Maximum Non-Detect	0.033
Variance Detected	4.5804E-4	Percent Non-Detects	45.83%
Mean Detected	0.0597	SD Detected	0.0214
Mean of Detected Logged Data	-2.872	SD of Detected Logged Data	0.332

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	0.869	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.814	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.182	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.271	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	0.0474	KM SD	0.0201
95% UTL95% Coverage	0.0939	95% KM UPL (t)	0.0827
95% KM UPL for Next 16 Observations	**0.109**	95% KM UPL for Mean of Next 16 Observations	0.0586
90% KM Percentile (z)	0.0733	95% KM Percentile (z)	0.0806
99% KM Percentile (z)	0.0943	95% KM USL	0.101

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0399	SD	0.0269
95% UTL95% Coverage	0.102	95% UPL (t)	0.0869
95% UPL for Next 16 Observations	**0.122**	95% UPL for Mean of Next 16 Observations	0.0547
90% Percentile (z)	0.0743	95% Percentile (z)	0.0841
99% Percentile (z)	0.102	95% USL	0.111

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	0.35	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.734	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.142	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.237	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)	9.622	k star (bias corrected MLE)	7.453
Theta hat (MLE)	0.0062	Theta star (bias corrected MLE)	0.00801
nu hat (MLE)	250.2	nu star (bias corrected)	193.8
MLE Mean (bias corrected)	0.0597		
MLE Sd (bias corrected)	0.0219	95% Percentile of Chisquare (2kstar)	24.87

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	0.0397
Maximum	0.116	Median	0.0362
SD	0.0275	CV	0.693
k hat (MLE)	2.062	k star (bias corrected MLE)	1.832
Theta hat (MLE)	0.0192	Theta star (bias corrected MLE)	0.0216
nu hat (MLE)	98.97	nu star (bias corrected)	87.93
MLE Mean (bias corrected)	0.0397	MLE Sd (bias corrected)	0.0293
95% Percentile of Chisquare (2kstar)	8.938	90% Percentile	0.0787
95% Percentile	0.0967	99% Percentile	0.137

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	0.132	0.14	95% Approx. Gamma UPL	0.0999	0.103
95% Gamma USL	0.154	0.167	95% UPL for Next 16 Observations	0.186	0.206

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0474	SD (KM)	0.0201
Variance (KM)	4.0560E-4	SE of Mean (KM)	0.00428
k hat (KM)	5.55	k star (KM)	4.884
nu hat (KM)	266.4	nu star (KM)	234.4
theta hat (KM)	0.00855	theta star (KM)	0.00971
80% gamma percentile (KM)	0.0639	90% gamma percentile (KM)	0.0762
95% gamma percentile (KM)	0.0874	99% gamma percentile (KM)	0.111

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	0.0972	0.098	95% Approx. Gamma UPL	0.0822	0.0822
95% KM Gamma Percentile	0.0795	0.0795	95% Gamma USL	0.107	0.108

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.943	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.889	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.139	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.215	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	0.0432	Mean in Log Scale	-3.287
SD in Original Scale	0.0243	SD in Log Scale	0.555
95% UTL95% Coverage	0.135	95% BCA UTL95% Coverage	0.11
95% Bootstrap (%) UTL95% Coverage	0.116	95% UPL (t)	0.0986
95% UPL for Next 16 Observations	0.205	95% UPL for Mean of 16 Observations	0.0508
90% Percentile (z)	0.0761	95% Percentile (z)	0.0931
99% Percentile (z)	0.136	95% USL	0.162

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.119	95% KM UTL (Lognormal)95% Coverage	0.101
KM SD of Logged Data	0.357	95% KM UPL (Lognormal)	0.0825
95% KM Percentile Lognormal (z)	0.0795	95% KM USL (Lognormal)	0.114

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0399	Mean in Log Scale	-3.437
SD in Original Scale	0.0269	SD in Log Scale	0.672
95% UTL95% Coverage	0.152	95% UPL (t)	0.104
95% UPL for Next 16 Observations	0.253	95% UPL for Mean of 16 Observations	0.0466
90% Percentile (z)	0.0761	95% Percentile (z)	0.0971

99% Percentile (z)	0.154	95% USL	0.19

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	0.116
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	0.105
95% USL	0.116	95% KM Chebyshev UPL	0.137

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	19	Number of Non-Detects	4
Number of Distinct Detects	15	Number of Distinct Non-Detects	1
Minimum Detect	3	Minimum Non-Detect	2.38
Maximum Detect	58	Maximum Non-Detect	2.38
Variance Detected	261.3	Percent Non-Detects	17.39%
Mean Detected	23.74	SD Detected	16.17
Mean of Detected Logged Data	2.87	SD of Detected Logged Data	0.893

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	0.935	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.863	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.158	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.229	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	20.02	KM SD	16.43
95% UTL95% Coverage	58.28	95% KM UPL (t)	48.85
95% KM UPL for Next 16 Observations	**70.77**	95% KM UPL for Mean of Next 16 Observations	29.21
90% KM Percentile (z)	41.08	95% KM Percentile (z)	47.05
99% KM Percentile (z)	58.25	95% KM USL	63.14

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	19.82	SD	17.03
95% UTL95% Coverage	59.47	95% UPL (t)	49.69
95% UPL for Next 16 Observations	72.42	95% UPL for Mean of Next 16 Observations	29.34
90% Percentile (z)	41.65	95% Percentile (z)	47.83
99% Percentile (z)	59.44	95% USL	64.51

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	0.319	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.754	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.108	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.201	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)	1.833	k star (bias corrected MLE)	1.579
Theta hat (MLE)	12.95	Theta star (bias corrected MLE)	15.03

nu hat (MLE)	69.67	nu star (bias corrected)	60
MLE Mean (bias corrected)	23.74		
MLE Sd (bias corrected)	18.89	95% Percentile of Chisquare (2kstar)	8.087

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	19.7
Maximum	58	Median	16
SD	17.17	CV	0.872
k hat (MLE)	0.596	k star (bias corrected MLE)	0.547
Theta hat (MLE)	33.04	Theta star (bias corrected MLE)	35.98
nu hat (MLE)	27.43	nu star (bias corrected)	25.18
MLE Mean (bias corrected)	19.7	MLE Sd (bias corrected)	26.62
95% Percentile of Chisquare (2kstar)	4.072	90% Percentile	52.28
95% Percentile	73.25	99% Percentile	124.4

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	112	146.6	95% Approx. Gamma UPL	74.47	89.48
95% Gamma USL	135.4	185	95% UPL for Next 16 Observations	178.5	259.8

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	20.02	SD (KM)	16.43
Variance (KM)	270	SE of Mean (KM)	3.52
k hat (KM)	1.485	k star (KM)	1.32
nu hat (KM)	68.29	nu star (KM)	60.72
theta hat (KM)	13.49	theta star (KM)	15.17
80% gamma percentile (KM)	31.4	90% gamma percentile (KM)	43.05

95% gamma percentile (KM)	54.46	99% gamma percentile (KM)	80.44

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	84.35	93.63	95% Approx. Gamma UPL	59.9	63.58
95% KM Gamma Percentile	55.87	58.81	95% Gamma USL	99.22	112.7

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.906	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.917	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.156	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.18	Detected Data appear 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	20.06	Mean in Log Scale	2.527
SD in Original Scale	16.77	SD in Log Scale	1.121
95% UTL95% Coverage	169.9	95% BCA UTL95% Coverage	57.5
95% Bootstrap (%) UTL95% Coverage	58	95% UPL (t)	89.34
95% UPL for Next 16 Observations	398.3	95% UPL for Mean of 16 Observations	23.41
90% Percentile (z)	52.61	95% Percentile (z)	79.04
99% Percentile (z)	169.6	95% USL	236.8

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.522	95% KM UTL (Lognormal)95% Coverage	159.5
KM SD of Logged Data	1.095	95% KM UPL (Lognormal)	85.06
95% KM Percentile Lognormal (z)	75.47	95% KM USL (Lognormal)	220.6

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	19.82	Mean in Log Scale	2.401

SD in Original Scale	17.03	SD in Log Scale	1.321
95% UTL95% Coverage	238.8	95% UPL (t)	111.9
95% UPL for Next 16 Observations	651.6	95% UPL for Mean of 16 Observations	23.09
90% Percentile (z)	59.96	95% Percentile (z)	96.87
99% Percentile (z)	238.3	95% USL	353

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

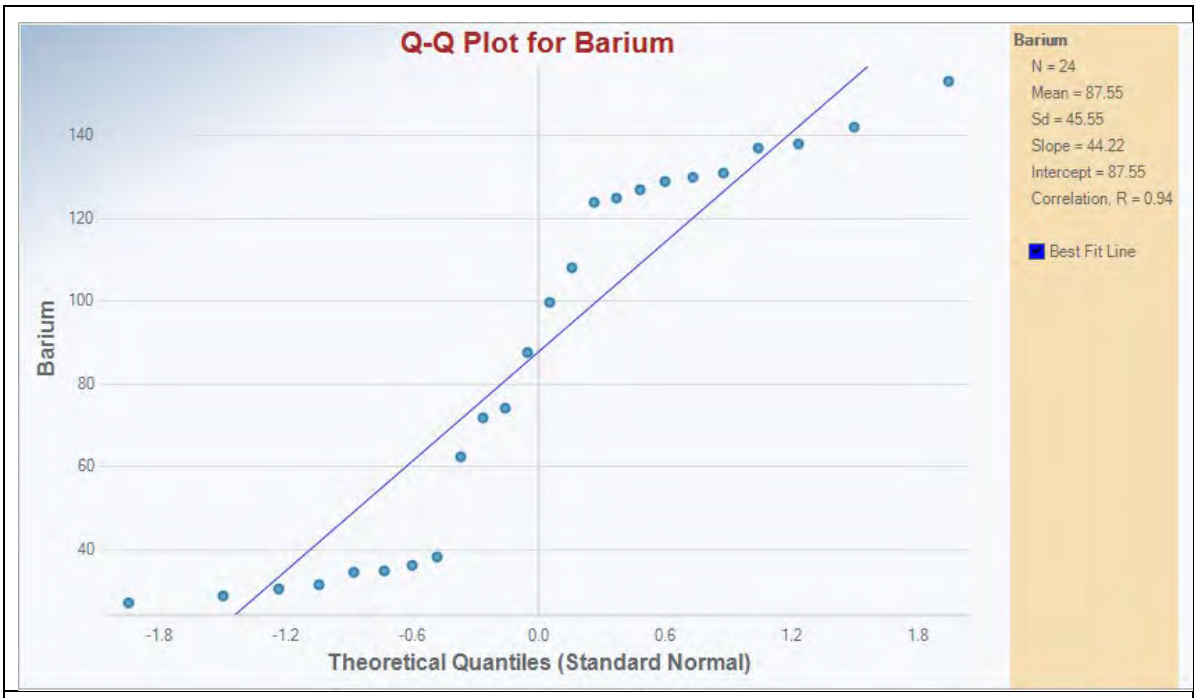
Data appear to follow a Discernible Distribution

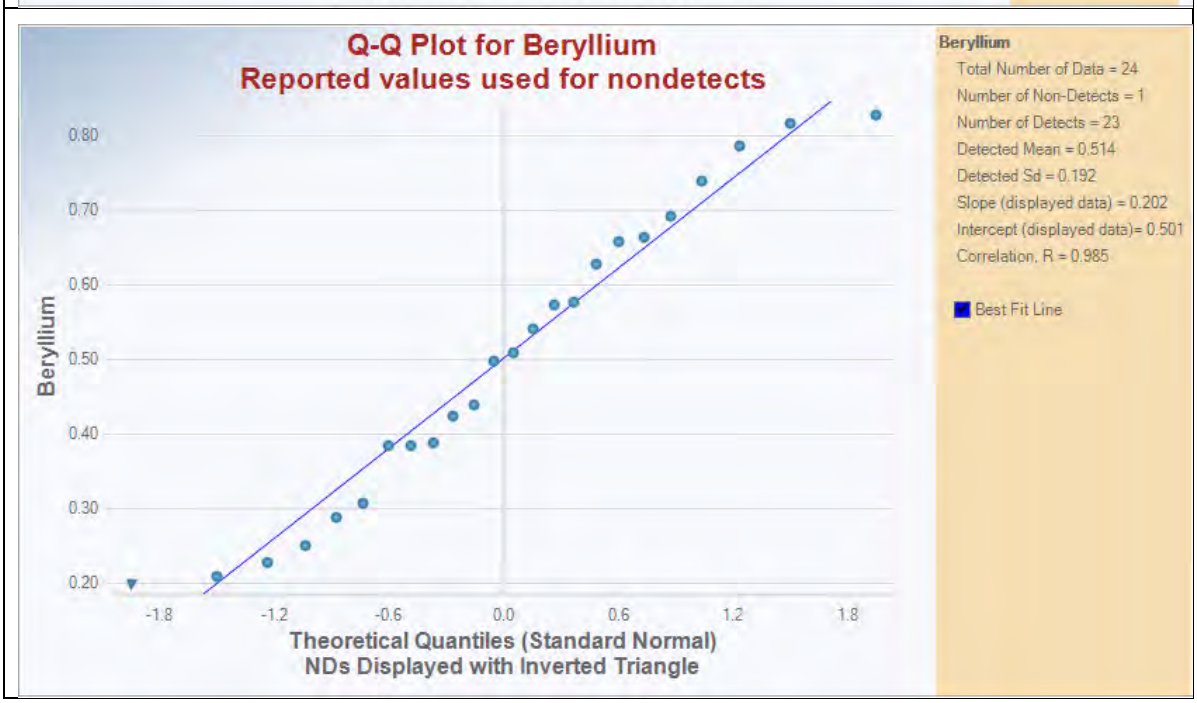
Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

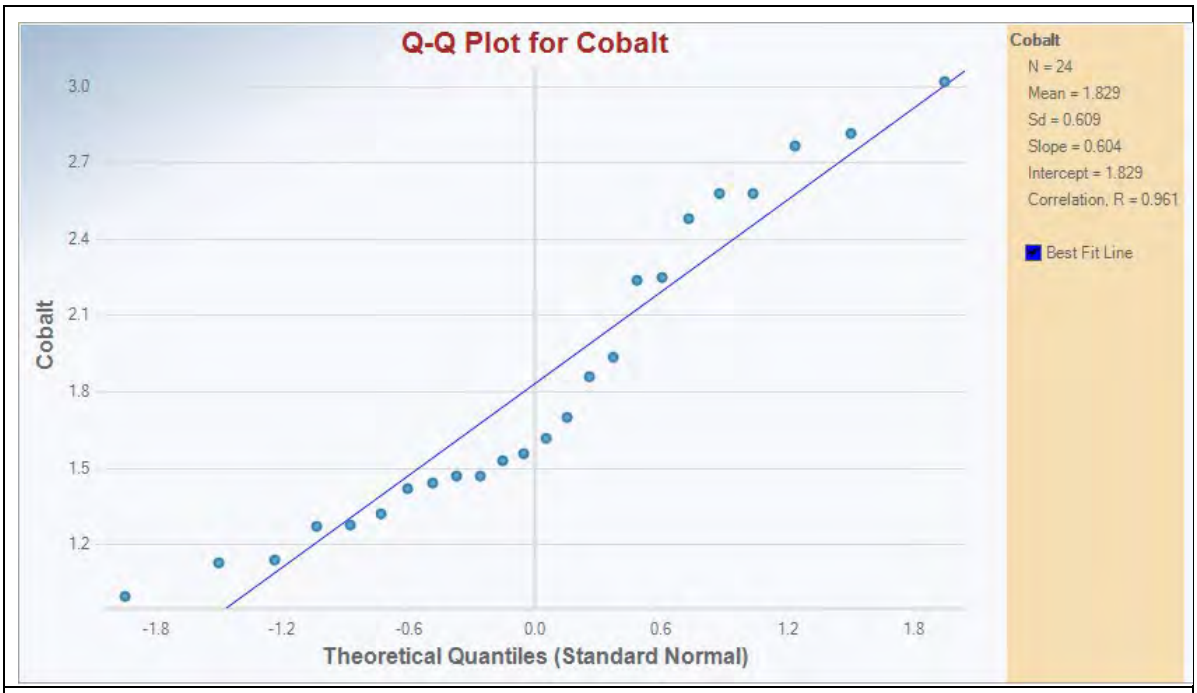
Order of Statistic, r	23	95% UTL with95% Coverage	58
Approx, f used to compute achieved CC	1.211	Approximate Actual Confidence Coefficient achieved by UTL	0.693
Approximate Sample Size needed to achieve specified CC	59	95% UPL	57
95% USL	58	95% KM Chebyshev UPL	93.19

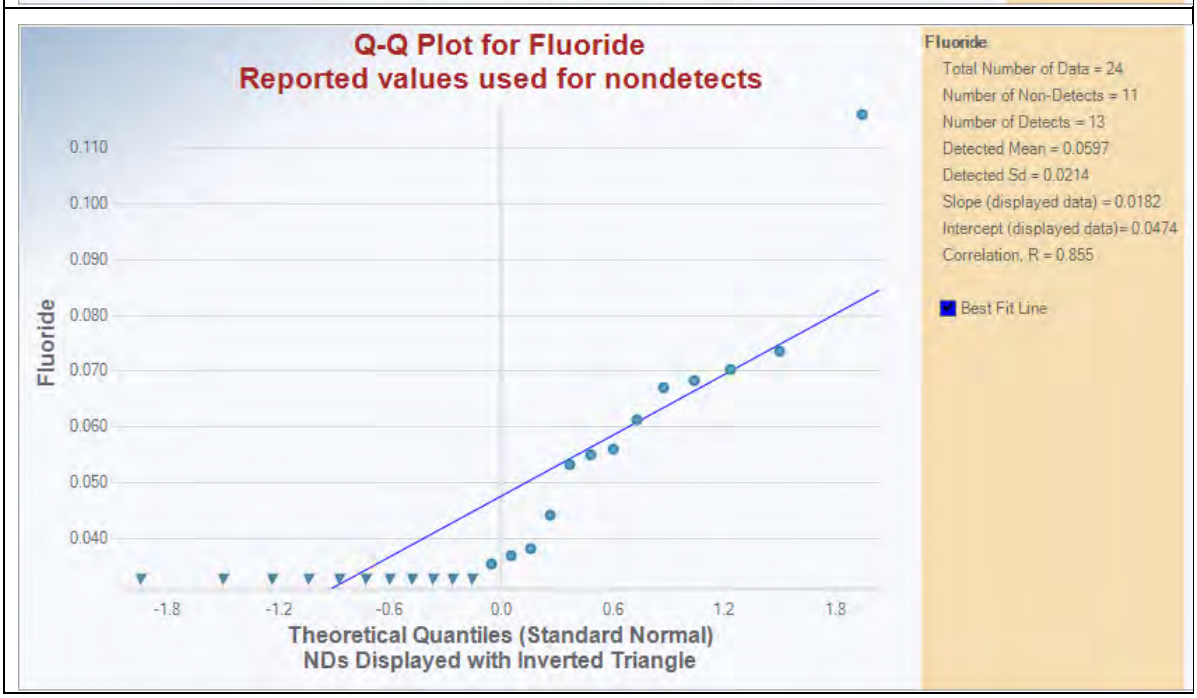
Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
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.

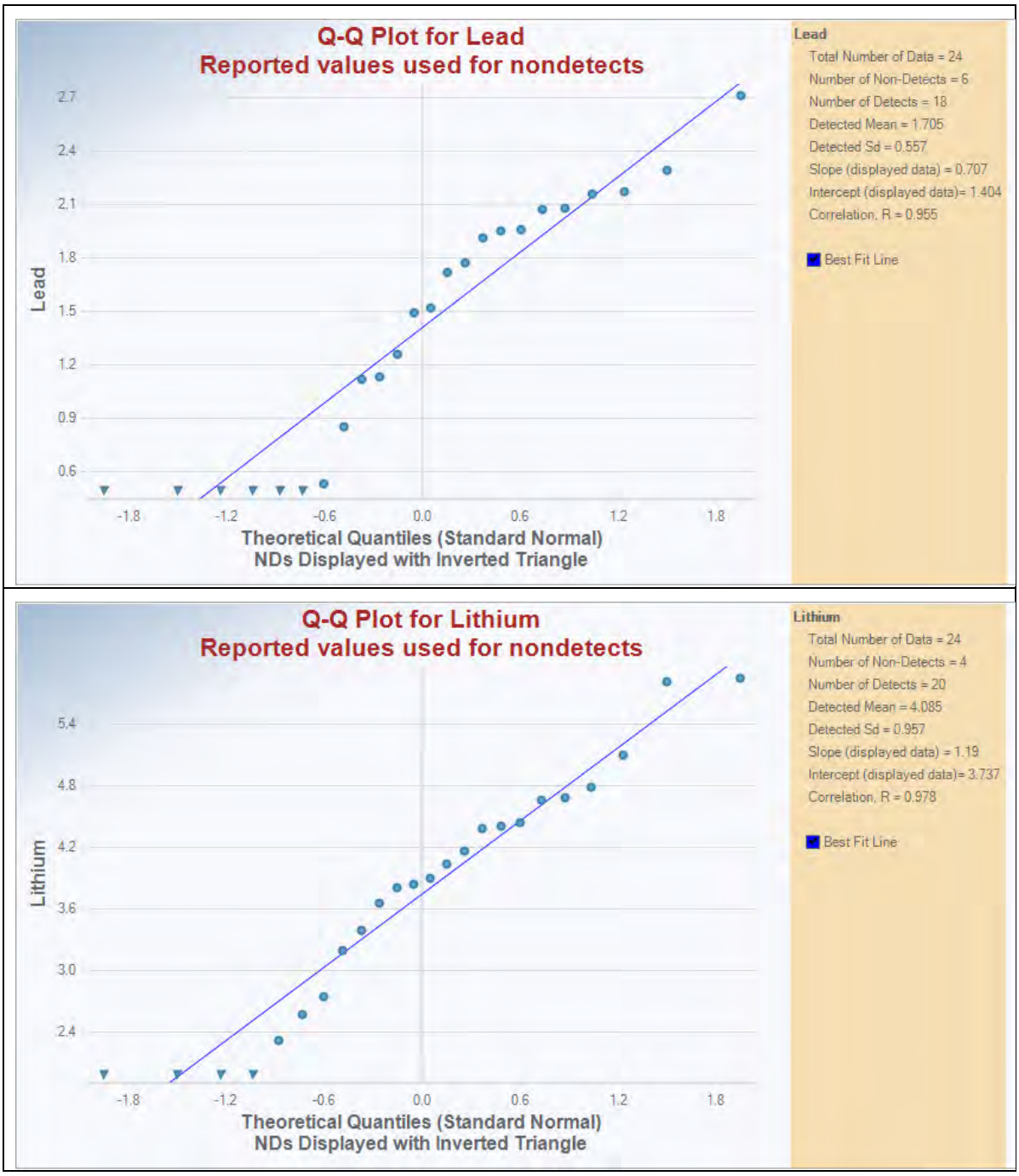
Appendix IV Constituents

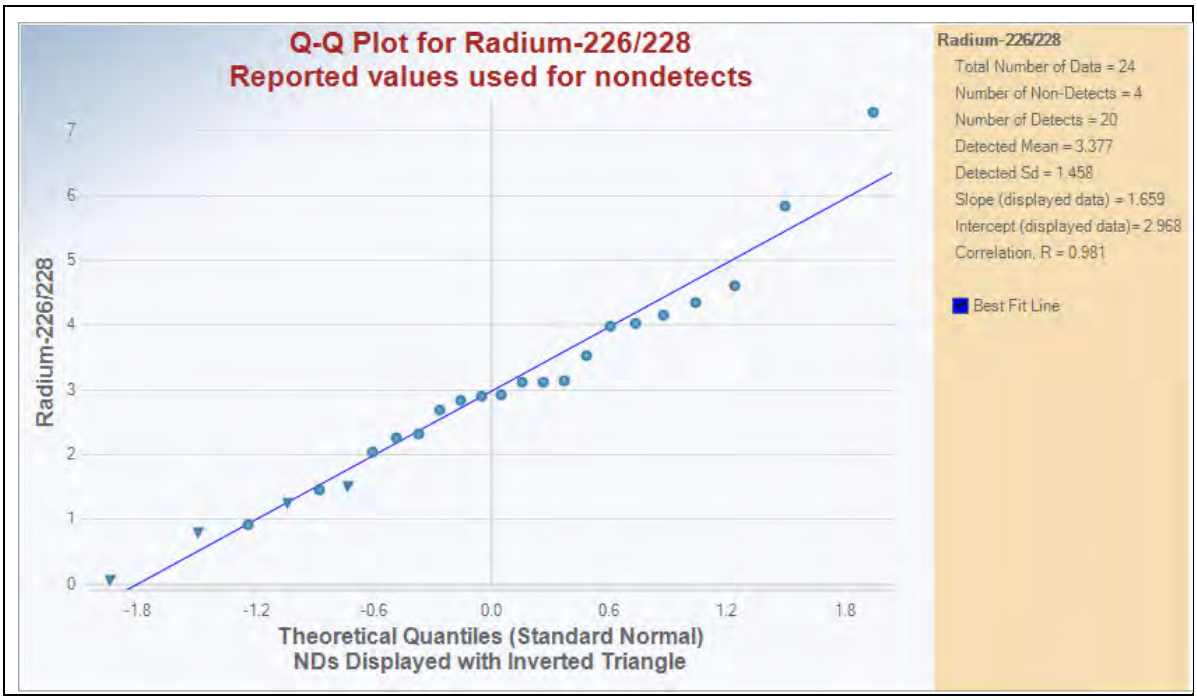

Q-Q Plot for Barium
Barium
N = 24
Mean = 87.55
Sd = 45.55
Slope = 44.22
Intercept = 87.55
Correlation, R = 0.94
Best Fit Line
Barium
140
120
100
80
60
40
-1.8
-1.2
-0.6
0.0
0.6
1.2
1.8
Theoretical Quantiles (Standard Normal)


Q-Q Plot for Beryllium
Reported values used for nondetects
Beryllium
Total Number of Data = 24
Number of Non-Detects = 1
Number of Detects = 23
Detected Mean = 0.514
Detected Sd = 0.192
Slope (displayed data) = 0.202
Intercept (displayed data)= 0.501
Correlation, R = 0.985
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
Cobalt
N = 24
Mean = 1.829
Sd = 0.609
Slope = 0.604
Intercept = 1.829
Correlation, R = 0.961
Best Fit Line
Cobalt
3.0
2.7
2.4
2.1
1.8
1.5
1.2
-1.8
-1.2
-0.6
0.0
0.6
1.2
1.8
Theoretical Quantiles (Standard Normal)


Q-Q Plot for Fluoride
Reported values used for nondetects
Fluoride
Total Number of Data = 24
Number of Non-Detects = 11
Number of Detects = 13
Detected Mean = 0.0597
Detected Sd = 0.0214
Slope (displayed data) = 0.0182
Intercept (displayed data)= 0.0474
Correlation, R = 0.855
Best Fit Line
Fluoride
0.110
0.100
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


Q-Q Plot for Lead
Reported values used for nondetects
Lead
2.7
2.4
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 = 6
Number of Detects = 18
Detected Mean = 1.705
Detected Sd = 0.557
Slope (displayed data) = 0.707
Intercept (displayed data)= 1.404
Correlation, R = 0.955
Best Fit Line
Q-Q Plot for Lithium
Reported values used for nondetects
Lithium
5.4
4.8
4.2
3.6
3.0
2.4
-1.8
-1.2
-0.6
0.0
0.6
1.2
1.8
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle
Lithium
Total Number of Data = 24
Number of Non-Detects = 4
Number of Detects = 20
Detected Mean = 4.085
Detected Sd = 0.957
Slope (displayed data) = 1.19
Intercept (displayed data)= 3.737
Correlation, R = 0.978
Best Fit Line


Q-Q Plot for Radium-226/228
Reported values used for nondetects
Radium-226/228
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle
Radium-226/228
Total Number of Data = 24
Number of Non-Detects = 4
Number of Detects = 20
Detected Mean = 3.377
Detected Sd = 1.458
Slope (displayed data) = 1.659
Intercept (displayed data)= 2.968
Correlation, R = 0.981
Best Fit Line

Background Statistics for Uncensored Full Data Sets

User Selected Options

Date/Time of Computation	ProUCL 5.2 11/6/2023 11:17:22 AM
From File	WorkSheet.xls
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	24
Minimum	27.2	First Quartile	35.85
Second Largest	142	Median	93.7
Maximum	153	Third Quartile	129.3
Mean	87.55	SD	45.55
Coefficient of Variation	0.52	Skewness	-0.133
Mean of logged Data	4.302	SD of logged Data	0.636

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	0.861	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.884	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.205	**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	192.7	90% Percentile (z)	145.9
	95% UPL (t)	**167.2**	95% Percentile (z)	162.5
	95% USL	208	99% Percentile (z)	193.5

Gamma GOF Test

A-D Test Statistic	1.525	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.751	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.215	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.179	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.096	k star (bias corrected MLE)	2.737
Theta hat (MLE)	28.28	Theta star (bias corrected MLE)	31.99
nu hat (MLE)	148.6	nu star (bias corrected)	131.4
MLE Mean (bias corrected)	87.55	MLE Sd (bias corrected)	52.92

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	194.1	90% Percentile	158.5
95% Hawkins Wixley (HW) Approx. Gamma UPL	200	95% Percentile	188.7
95% WH Approx. Gamma UTL with 95% Coverage	246.8	99% Percentile	254.5
95% HW Approx. Gamma UTL with 95% Coverage	259.8		
95% WH USL	282.4	95% HW USL	301.4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.834	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.93	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.209	**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	320.8	90% Percentile (z)		166.9
	95% UPL (t)	224.7	95% Percentile (z)		210.3
	95% USL	397	99% Percentile (z)		324.4

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	153
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	153	95% BCA Bootstrap UTL with	95% Coverage	153
	95% UPL	150.3		90% Percentile	137.7
	90% Chebyshev UPL	227		95% Percentile	141.4
	95% Chebyshev UPL	290.2		99% Percentile	150.5
	95% USL	153			

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 Distinct Observations	22
Minimum	0.998	First Quartile	1.395
Second Largest	2.82	Median	1.59
Maximum	3.02	Third Quartile	2.308
Mean	1.829	SD	0.609
Coefficient of Variation	0.333	Skewness	0.585

Mean of logged Data	0.552	SD of logged Data	0.326

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	0.911	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.884	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.176	**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	3.234	90% Percentile (z)	2.609
95% UPL (t)	**2.893**	95% Percentile (z)	2.83
95% USL	3.438	99% Percentile (z)	3.245

Gamma GOF Test

A-D Test Statistic	0.641	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.744	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.147	**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)	9.863	k star (bias corrected MLE)	8.658
Theta hat (MLE)	0.185	Theta star (bias corrected MLE)	0.211
nu hat (MLE)	473.4	nu star (bias corrected)	415.6
MLE Mean (bias corrected)	1.829	MLE Sd (bias corrected)	0.621

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2.992	90% Percentile	2.657
95% Hawkins Wixley (HW) Approx. Gamma UPL	3.01	95% Percentile	2.956

95% WH Approx. Gamma UTL with 95% Coverage	3.48	99% Percentile	3.575
95% HW Approx. Gamma UTL with 95% Coverage	3.524		
95% WH USL	3.795	95% HW USL	3.862

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.945	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.93	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.129	**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	3.689	90% Percentile (z)	2.638
95% UPL (t)	3.073	95% Percentile (z)	2.97
95% USL	4.114	99% Percentile (z)	3.709

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	3.02
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	3.02	95% BCA Bootstrap UTL with 95% Coverage	3.02
95% UPL	2.97	90% Percentile	2.713
90% Chebyshev UPL	3.693	95% Percentile	2.813
95% Chebyshev UPL	4.537	99% Percentile	2.974
95% USL	3.02		

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 11/6/2023 11:19:45 AM
From File	WorkSheet.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	23		
Number of Detects	23	Number of Non-Detects	1
Number of Distinct Detects	22	Number of Distinct Non-Detects	1
Minimum Detect	0.208	Minimum Non-Detect	0.2
Maximum Detect	0.828	Maximum Non-Detect	0.2
Variance Detected	0.037	Percent Non-Detects	4.167%
Mean Detected	0.514	SD Detected	0.192
Mean of Detected Logged Data	-0.742	SD of Detected Logged Data	0.416

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	0.958	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.881	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.0917	**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	0.501	KM SD	0.195
95% UTL95% Coverage	0.95	**95% KM UPL (t)**	**0.841**
90% KM Percentile (z)	0.75	95% KM Percentile (z)	0.821
99% KM Percentile (z)	0.954	95% KM USL	1.015

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.497	SD	0.206
95% UTL95% Coverage	0.973	95% UPL (t)	0.858
90% Percentile (z)	0.761	95% Percentile (z)	0.836
99% Percentile (z)	0.977	95% USL	1.042

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	0.33	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.746	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0956	**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)	6.698	k star (bias corrected MLE)	5.853
Theta hat (MLE)	0.0768	Theta star (bias corrected MLE)	0.0878
nu hat (MLE)	308.1	nu star (bias corrected)	269.2
MLE Mean (bias corrected)	0.514		
MLE Sd (bias corrected)	0.212	95% Percentile of Chisquare (2kstar)	20.63

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	0.15	Mean	0.499
Maximum	0.828	Median	0.504

SD	0.202	CV	0.405
k hat (MLE)	5.443	k star (bias corrected MLE)	4.79
Theta hat (MLE)	0.0917	Theta star (bias corrected MLE)	0.104
nu hat (MLE)	261.2	nu star (bias corrected)	229.9
MLE Mean (bias corrected)	0.499	MLE Sd (bias corrected)	0.228
95% Percentile of Chisquare (2kstar)	17.73	90% Percentile	0.804
95% Percentile	0.923	99% Percentile	1.175

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	1.14	1.178	95% Approx. Gamma UPL	0.94	0.959
95% Gamma USL	1.271	1.326			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.501	SD (KM)	0.195
Variance (KM)	0.0379	SE of Mean (KM)	0.0406
k hat (KM)	6.628	k star (KM)	5.827
nu hat (KM)	318.2	nu star (KM)	279.7
theta hat (KM)	0.0756	theta star (KM)	0.086
80% gamma percentile (KM)	0.662	90% gamma percentile (KM)	0.778
95% gamma percentile (KM)	0.884	99% gamma percentile (KM)	1.105

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	1.096	1.126	95% Approx. Gamma UPL	0.913	0.927
95% KM Gamma Percentile	0.881	0.893	95% Gamma USL	1.216	1.26

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.941	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.928	Detected Data appear Lognormal at 10% Significance Level	

Lilliefors Test Statistic	0.108	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.165	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	0.5	Mean in Log Scale	-0.784
SD in Original Scale	0.201	SD in Log Scale	0.457
95% UTL95% Coverage	1.311	95% BCA UTL95% Coverage	0.828
95% Bootstrap (%) UTL95% Coverage	0.828	95% UPL (t)	1.015
90% Percentile (z)	0.82	95% Percentile (z)	0.968
99% Percentile (z)	1.322	95% USL	1.528

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-0.778	95% KM UTL (Lognormal)95% Coverage	1.252
KM SD of Logged Data	0.434	95% KM UPL (Lognormal)	0.982
95% KM Percentile Lognormal (z)	0.939	95% KM USL (Lognormal)	1.449

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.497	Mean in Log Scale	-0.807
SD in Original Scale	0.206	SD in Log Scale	0.517
95% UTL95% Coverage	1.472	95% UPL (t)	1.102
90% Percentile (z)	0.865	95% Percentile (z)	1.044
99% Percentile (z)	1.485	95% USL	1.75

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	0.828
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	0.825
95% USL	0.828	95% KM Chebyshev UPL	1.367

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	13	Number of Non-Detects	11
Number of Distinct Detects	13	Number of Distinct Non-Detects	1
Minimum Detect	0.0354	Minimum Non-Detect	0.033
Maximum Detect	0.116	Maximum Non-Detect	0.033
Variance Detected	4.5780E-4	Percent Non-Detects	45.83%
Mean Detected	0.0597	SD Detected	0.0214
Mean of Detected Logged Data	-2.872	SD of Detected Logged Data	0.332

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	0.869	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.814	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.182	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.271	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	0.0474	KM SD	0.0201
95% UTL95% Coverage	0.0939	**95% KM UPL (t)**	**0.0827**
90% KM Percentile (z)	0.0732	95% KM Percentile (z)	0.0806
99% KM Percentile (z)	0.0943	95% KM USL	0.101

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0399	SD	0.0269
95% UTL95% Coverage	0.102	95% UPL (t)	0.0869
90% Percentile (z)	0.0743	95% Percentile (z)	0.0841
99% Percentile (z)	0.102	95% USL	0.111

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	0.349	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.734	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.142	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.237	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)	9.627	k star (bias corrected MLE)	7.457
Theta hat (MLE)	0.0062	Theta star (bias corrected MLE)	0.008
nu hat (MLE)	250.3	nu star (bias corrected)	193.9
MLE Mean (bias corrected)	0.0597		
MLE Sd (bias corrected)	0.0218	95% Percentile of Chisquare (2kstar)	24.88

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	0.0396
Maximum	0.116	Median	0.0362
SD	0.0275	CV	0.693
k hat (MLE)	2.062	k star (bias corrected MLE)	1.832
Theta hat (MLE)	0.0192	Theta star (bias corrected MLE)	0.0216
nu hat (MLE)	98.98	nu star (bias corrected)	87.94
MLE Mean (bias corrected)	0.0396	MLE Sd (bias corrected)	0.0293

95% Percentile of Chisquare (2kstar)	8.938	90% Percentile	0.0787
95% Percentile	0.0967	99% Percentile	0.137

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	0.132	0.14	95% Approx. Gamma UPL	0.0999	0.103
95% Gamma USL	0.154	0.167			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0474	SD (KM)	0.0201
Variance (KM)	4.0527E-4	SE of Mean (KM)	0.00428
k hat (KM)	5.553	k star (KM)	4.886
nu hat (KM)	266.5	nu star (KM)	234.5
theta hat (KM)	0.00854	theta star (KM)	0.00971
80% gamma percentile (KM)	0.0639	90% gamma percentile (KM)	0.0762
95% gamma percentile (KM)	0.0873	99% gamma percentile (KM)	0.111

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	0.0972	0.0979	95% Approx. Gamma UPL	0.0821	0.0822
95% KM Gamma Percentile	0.0795	0.0795	95% Gamma USL	0.107	0.108

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.943	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.889	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.139	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.215	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	0.0432	Mean in Log Scale	-3.287
SD in Original Scale	0.0243	SD in Log Scale	0.555

95% UTL95% Coverage	0.134	95% BCA UTL95% Coverage	0.116
95% Bootstrap (%) UTL95% Coverage	0.116	95% UPL (t)	0.0986
90% Percentile (z)	0.0761	95% Percentile (z)	0.093
99% Percentile (z)	0.136	95% USL	0.162

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.119	95% KM UTL (Lognormal)95% Coverage	0.101
KM SD of Logged Data	0.357	95% KM UPL (Lognormal)	0.0825
95% KM Percentile Lognormal (z)	0.0795	95% KM USL (Lognormal)	0.114

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0399	Mean in Log Scale	-3.437
SD in Original Scale	0.0269	SD in Log Scale	0.672
95% UTL95% Coverage	0.152	95% UPL (t)	0.104
90% Percentile (z)	0.0761	95% Percentile (z)	0.0971
99% Percentile (z)	0.153	95% USL	0.19

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	0.116
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	0.105
95% USL	0.116	95% KM Chebyshev UPL	0.137

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	19		
Number of Detects	18	Number of Non-Detects	6
Number of Distinct Detects	18	Number of Distinct Non-Detects	1
Minimum Detect	0.533	Minimum Non-Detect	0.5
Maximum Detect	2.71	Maximum Non-Detect	0.5
Variance Detected	0.31	Percent Non-Detects	25%
Mean Detected	1.705	SD Detected	0.557
Mean of Detected Logged Data	0.468	SD of Detected Logged Data	0.404

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	0.967	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.858	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.143	**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	1.404	KM SD	0.701
95% UTL95% Coverage	3.024	**95% KM UPL (t)**	**2.631**
90% KM Percentile (z)	2.303	95% KM Percentile (z)	2.558
99% KM Percentile (z)	3.036	95% KM USL	3.259

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.342	SD	0.802
95% UTL95% Coverage	3.194	95% UPL (t)	2.745
90% Percentile (z)	2.37	95% Percentile (z)	2.661
99% Percentile (z)	3.208	95% USL	3.463

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	0.602	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.741	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.17	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.204	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)	7.788	k star (bias corrected MLE)	6.527
Theta hat (MLE)	0.219	Theta star (bias corrected MLE)	0.261
nu hat (MLE)	280.4	nu star (bias corrected)	235
MLE Mean (bias corrected)	1.705		
MLE Sd (bias corrected)	0.668	95% Percentile of Chisquare (2kstar)	22.43

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	0.396	Mean	1.447
Maximum	2.71	Median	1.505
SD	0.667	CV	0.461
k hat (MLE)	4.115	k star (bias corrected MLE)	3.628
Theta hat (MLE)	0.352	Theta star (bias corrected MLE)	0.399
nu hat (MLE)	197.5	nu star (bias corrected)	174.2
MLE Mean (bias corrected)	1.447	MLE Sd (bias corrected)	0.76
95% Percentile of Chisquare (2kstar)	14.44	90% Percentile	2.465
95% Percentile	2.879	99% Percentile	3.767

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	3.651	3.805	95% Approx. Gamma UPL	2.945	3.017

95% Gamma USL	4.122	4.345

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.404	SD (KM)	0.701
Variance (KM)	0.492	SE of Mean (KM)	0.147
k hat (KM)	4.006	k star (KM)	3.533
nu hat (KM)	192.3	nu star (KM)	169.6
theta hat (KM)	0.35	theta star (KM)	0.397
80% gamma percentile (KM)	1.964	90% gamma percentile (KM)	2.406
95% gamma percentile (KM)	2.814	99% gamma percentile (KM)	3.692

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	3.803	3.989	95% Approx. Gamma UPL	3.016	3.1
95% KM Gamma Percentile	2.883	2.953	95% Gamma USL	4.333	4.605

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.883	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.914	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.184	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.185	Detected Data appear 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	1.451	Mean in Log Scale	0.253
SD in Original Scale	0.66	SD in Log Scale	0.523
95% UTL95% Coverage	4.311	95% BCA UTL95% Coverage	2.71
95% Bootstrap (%) UTL95% Coverage	2.71	95% UPL (t)	3.216
90% Percentile (z)	2.518	95% Percentile (z)	3.045
99% Percentile (z)	4.35	95% USL	5.136

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.178	95% KM UTL (Lognormal)95% Coverage	4.85
KM SD of Logged Data	0.607	95% KM UPL (Lognormal)	3.453

95% KM Percentile Lognormal (z)	3.241	95% KM USL (Lognormal)	5.943

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1.342	Mean in Log Scale	0.00457
SD in Original Scale	0.802	SD in Log Scale	0.891
95% UTL95% Coverage	7.854	95% UPL (t)	4.771
90% Percentile (z)	3.145	95% Percentile (z)	4.347
99% Percentile (z)	7.976	95% USL	10.58

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	2.71
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	2.605
95% USL	2.71	95% KM Chebyshev UPL	4.525

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	2.32	Minimum Non-Detect	2
Maximum Detect	5.84	Maximum Non-Detect	2
Variance Detected	0.916	Percent Non-Detects	16.67%

Mean Detected	4.085	SD Detected	0.957
Mean of Detected Logged Data	1.379	SD of Detected Logged Data	0.249

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	0.974	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.868	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.0871	**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	3.737	KM SD	1.153
95% UTL95% Coverage	6.399	**95% KM UPL (t)**	**5.753**
90% KM Percentile (z)	5.214	95% KM Percentile (z)	5.633
99% KM Percentile (z)	6.419	95% KM USL	6.785

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	3.57	SD	1.461
95% UTL95% Coverage	6.945	95% UPL (t)	6.127
90% Percentile (z)	5.443	95% Percentile (z)	5.974
99% Percentile (z)	6.97	95% USL	7.434

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	0.283	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.741	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.116	**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)	17.98	k star (bias corrected MLE)	15.32
Theta hat (MLE)	0.227	Theta star (bias corrected MLE)	0.267
nu hat (MLE)	719.3	nu star (bias corrected)	612.8
MLE Mean (bias corrected)	4.085		
MLE Sd (bias corrected)	1.044	95% Percentile of Chisquare (2kstar)	44.55

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	1.781	Mean	3.763
Maximum	5.84	Median	3.87
SD	1.144	CV	0.304
k hat (MLE)	10.34	k star (bias corrected MLE)	9.071
Theta hat (MLE)	0.364	Theta star (bias corrected MLE)	0.415
nu hat (MLE)	496.1	nu star (bias corrected)	435.4
MLE Mean (bias corrected)	3.763	MLE Sd (bias corrected)	1.249
95% Percentile of Chisquare (2kstar)	29.05	90% Percentile	5.426
95% Percentile	6.026	99% Percentile	7.26

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	7.072	7.199	95% Approx. Gamma UPL	6.1	6.161
95% Gamma USL	7.699	7.879			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	3.737	SD (KM)	1.153
Variance (KM)	1.329	SE of Mean (KM)	0.241
k hat (KM)	10.51	k star (KM)	9.224
nu hat (KM)	504.5	nu star (KM)	442.7
theta hat (KM)	0.356	theta star (KM)	0.405

80% gamma percentile (KM)	4.714	90% gamma percentile (KM)	5.375
95% gamma percentile (KM)	5.964	99% gamma percentile (KM)	7.177

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	7.094	7.227	95% Approx. Gamma UPL	6.104	6.167
95% KM Gamma Percentile	5.93	5.983	95% Gamma USL	7.735	7.923

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.954	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.92	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.134	**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	3.782	Mean in Log Scale	1.285
SD in Original Scale	1.114	SD in Log Scale	0.314
95% UTL95% Coverage	7.461	95% BCA UTL95% Coverage	5.84
95% Bootstrap (%) UTL95% Coverage	5.84	95% UPL (t)	6.259
90% Percentile (z)	5.405	95% Percentile (z)	6.058
99% Percentile (z)	7.501	95% USL	8.287

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	1.265	95% KM UTL (Lognormal)95% Coverage	7.734
KM SD of Logged Data	0.338	95% KM UPL (Lognormal)	6.4
95% KM Percentile Lognormal (z)	6.178	95% KM USL (Lognormal)	8.661

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	3.57	Mean in Log Scale	1.149
SD in Original Scale	1.461	SD in Log Scale	0.572
95% UTL95% Coverage	11.81	95% UPL (t)	8.578
90% Percentile (z)	6.566	95% Percentile (z)	8.081

99% Percentile (z)	11.93	95% USL	14.31

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	5.84
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	5.833
95% USL	5.84	95% KM Chebyshev UPL	8.865

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	20	Number of Non-Detects	4
Number of Distinct Detects	19	Number of Distinct Non-Detects	4
Minimum Detect	0.916	Minimum Non-Detect	0.0834
Maximum Detect	7.28	Maximum Non-Detect	1.53
Variance Detected	2.127	Percent Non-Detects	16.67%
Mean Detected	3.377	SD Detected	1.458
Mean of Detected Logged Data	1.124	SD of Detected Logged Data	0.464

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	0.942	**Shapiro Wilk GOF Test**	

1% Shapiro Wilk Critical Value	0.868	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.162	**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	2.86	KM SD	1.745
95% UTL95% Coverage	6.889	**95% KM UPL (t)**	**5.913**
90% KM Percentile (z)	5.097	95% KM Percentile (z)	5.731
99% KM Percentile (z)	6.92	95% KM USL	7.474

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	2.891	SD	1.732
95% UTL95% Coverage	6.891	95% UPL (t)	5.921
90% Percentile (z)	5.111	95% Percentile (z)	5.74
99% Percentile (z)	6.921	95% USL	7.471

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	0.266	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.745	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.107	**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)	5.515	k star (bias corrected MLE)	4.721
Theta hat (MLE)	0.612	Theta star (bias corrected MLE)	0.715
nu hat (MLE)	220.6	nu star (bias corrected)	188.8
MLE Mean (bias corrected)	3.377		
MLE Sd (bias corrected)	1.554	95% Percentile of Chisquare (2kstar)	17.54

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	0.689	Mean	2.955
Maximum	7.28	Median	2.915
SD	1.64	CV	0.555
k hat (MLE)	2.963	k star (bias corrected MLE)	2.62
Theta hat (MLE)	0.997	Theta star (bias corrected MLE)	1.128
nu hat (MLE)	142.2	nu star (bias corrected)	125.8
MLE Mean (bias corrected)	2.955	MLE Sd (bias corrected)	1.826
95% Percentile of Chisquare (2kstar)	11.44	90% Percentile	5.402
95% Percentile	6.452	99% Percentile	8.745

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	8.451	8.918	95% Approx. Gamma UPL	6.625	6.837
95% Gamma USL	9.688	10.37			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2.86	SD (KM)	1.745
Variance (KM)	3.045	SE of Mean (KM)	0.367
k hat (KM)	2.686	k star (KM)	2.378
nu hat (KM)	129	nu star (KM)	114.2
theta hat (KM)	1.065	theta star (KM)	1.203
80% gamma percentile (KM)	4.195	90% gamma percentile (KM)	5.344
95% gamma percentile (KM)	6.429	99% gamma percentile (KM)	8.812

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	11.42	13.47	95% Approx. Gamma UPL	8.306	9.296
95% KM Gamma Percentile	7.797	8.64	95% Gamma USL	13.6	16.56

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.956	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.92	Detected Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.136	**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	3.008	Mean in Log Scale	0.961
SD in Original Scale	1.571	SD in Log Scale	0.563
95% UTL95% Coverage	9.595	95% BCA UTL95% Coverage	7.28
95% Bootstrap (%) UTL95% Coverage	7.28	95% UPL (t)	7
90% Percentile (z)	5.379	95% Percentile (z)	6.601
99% Percentile (z)	9.689	95% USL	11.59

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.606	95% KM UTL (Lognormal)95% Coverage	36.52
KM SD of Logged Data	1.296	95% KM UPL (Lognormal)	17.68
95% KM Percentile Lognormal (z)	15.45	95% KM USL (Lognormal)	56.37

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	2.891	Mean in Log Scale	0.737
SD in Original Scale	1.732	SD in Log Scale	1.093
95% UTL95% Coverage	26.06	95% UPL (t)	14.13
90% Percentile (z)	8.477	95% Percentile (z)	12.61
99% Percentile (z)	26.56	95% USL	37.58

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	7.28
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	6.918
95% USL	7.28	95% KM Chebyshev UPL	10.62

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-FGD-01	12.0 J	1,280	8.05	0.0533 J	4.46	0.397 J	16
BL-2	AS-FGD-01	9.41 J	1,230	8.52	< 0.0330	4.43	0.581	23
BL-3	AS-FGD-01	4.78 J	1,170	8.54	< 0.0330	4.46	0.326 J	26
BL-4	AS-FGD-01	9.20 J	1,110	8.28	< 0.0330	4.38	0.279 J	< 2.38
BL-5	AS-FGD-01	8.25 J	944	7.88	0.0551 J	4.20	0.745	14
BL-6	AS-FGD-01	7.88 J	969	7.39	0.0381 J	4.26	0.519	13
BL-7	AS-FGD-01	8.71 J	975	7.56	< 0.0330	4.08	1.1	10
BL-8	AS-FGD-01	6.92 J	1,080	7.45	< 0.0330	4.09	0.534	3
BL-1	MW-FGD-01	11.8 J	1,320	7.95	0.0560 J	4.49	0.818	16
BL-2	MW-FGD-01	9.70 J	1,340	9.65	0.0354 J	4.45	1.3	23
BL-3	MW-FGD-01	7.56 J	1,500	9.45	0.0672 J	4.42	0.962	14
BL-4	MW-FGD-01	9.45 J	2,210	10.1	0.0443 J	4.66	0.618	4.00 J
BL-5	MW-FGD-01	7.34 J	1,190	7.64	0.0369 J	4.38	1.53	< 2.38
BL-6	MW-FGD-01	7.78 J	971	5.97	< 0.0330	4.48	0.689	< 2.38
BL-7	MW-FGD-01	7.56 J	1,000	5.89	< 0.0330	4.29	1.93	< 2.38
BL-8	MW-FGD-01	5.93 J	878	5.56	< 0.0330	4.33	1.27	3.00 J
BL-1	MW-FGD-06	21.8	2,520	7.97	0.116	5.23	11.2	58
BL-2	MW-FGD-06	19.4	3,810	7.72	< 0.0330	5.48	34.3	136(1)
BL-3	MW-FGD-06	12.7 J	2,120	6.45	0.0735 J	5.29	21.9	53

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-FGD-06	12.3 J	2,070	6.28	0.0703 J	5.30	15.8	32
BL-5	MW-FGD-06	12.0 J	1,840	5.95	0.0684 J	5.24	15.6	39
BL-6	MW-FGD-06	10.0 J	1,700	5.86	0.0612 J	5.06	7.6	41
BL-7	MW-FGD-06	10.9 J	1,610	5.93	< 0.0330	5.06	7.42	38
BL-8	MW-FGD-06	9.76	1,580	5.62	< 0.0330	4.74	5.63	25

(1) = Result was removed from the data set as an outlier.

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 Flue Gas Desulfurization Pond, Eastover, South Carolina. O'Brein & Gere Inc. (OBG), October 17, 2017.

TRC 2023a. *Flue Gas Desulfurization Pond Groundwater Monitoring System Certification* per 40 CFR 257.91 (f), Wateree Generating Station, Eastover, South Carolina. TRC Environmental Corporation (TRC), October 6, 2023.