DOMINION ENERGY SOUTH CAROLINA

WILLIAMS STATION NEW FLUE GAS DESULFURIZATION POND

BERKELEY COUNTY, SOUTH CAROLINA

EPA CCR RULE COMPLIANCE

2023 CCR ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

January 31, 2024

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Executive Summary

Dominion Energy South Carolina (DESC) operates a New Flue Gas Desulfurization (FGD) Wastewater Pond (New FGD Pond) (Unit) for the management of coal combustion residuals (CCR) at the Williams Generating Station (Station) located in Goose Creek, Berkeley County, South Carolina. The Unit receives CCR generated from an air quality control system that produces FGD wastewater blowdown waste stream. Management of the CCR at 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-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR

- Calcium – MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR
- Chloride – MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR
- pH – MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR
- Sulfate – MW-FGD-20AR
- Total Dissolved Solids (TDS) – MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR

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 by TRC Environmental Corporation (TRC) on behalf of Dominion Energy South Carolina (DESC) for the New Flue Gas Desulfurization (FGD) Wastewater Pond (New FGD Pond) (Unit) at the Williams Generating Station (Station) located in Goose Creek, Berkeley County, South Carolina. The original FGD Pond was closed in April 2021 by removal of CCR in accordance with §257.102(c) and the Closure Plan – Amendment 1 (Closure Plan), dated February 2021. The removed CCR was transported offsite for disposal at the Williams Station Highway 52 Class III Landfill. A Closure by Removal Certificate was prepared by Civil & Environmental Consultants, Inc., and dated May 2021 (CEC 2021).

A new FGD Pond was installed within the boundaries of the original FGD Pond which opened in April 2021 in accordance with the CCR Rule requirements. The Unit is managed as a new CCR unit and 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 2242 Bushy Park Road in Berkeley County, South Carolina (**Figure 1**). The Station is located approximately 6 miles northeast of Goose Creek, South Carolina. The Unit is located onsite approximately 2,000 feet north of the generating plant.

1.2 Site History

The Williams Generating Station is an active coal-fired power station that began operations in 1973 and operates a single 633-megawatt unit. The Station operates a series of low volume waste treatment ponds in addition to the New FGD Pond of which only the New FGD Pond is designated as a CCR Rule Surface Impoundment. This report addresses the groundwater monitoring activities for the Unit only.

1.3 Key Actions

Key actions for the Unit are as follows:

- Initiated the Detection Monitoring Program (DMP) on April 28, 2021, with the collection of eight (8) baseline/background samples and completed the background monitoring activities on September 23, 2021, pursuant to 40 CFR §257.94(b).
- Conducted the initial DMP compliance sampling event on March 22-23, 2022, and completed the sample analyses on April 4, 2022, pursuant to 40 CFR §257.94(b).
- 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 May 7, 2021, 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 May 7, 2021, 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 May 7, 2021, pursuant to 40 CFR §257.105(h)(4).
- On April 3, 2023, an Alternate Source Demonstration (ASD) was placed in Station's the operating record per 40 CFR §257.94€(2) in response to potential Statistically Significant Increases (SSIs) identified during the statistical evaluation of the data generated from the second semiannual (September 2022) detection monitoring event. The ASD was certified by a South Carolina-registered professional engineer. As required by 40 CFR §257.94(e)(2), a copy of the ASD is included in **Appendix A**. Based on the successful evaluation and the results presented in the ASD, DESC continued with detection monitoring in accordance with 40 CFR §257.94.
- In January 2023, DESC installed three new groundwater monitoring wells (MW-FGD-22, MW-FGD-23, and MW-FGD-24) along the western and southern edge of the Unit as part of an evaluation of the United States Environmental Protection Agency (EPA) CCR Compliance Monitoring Well Network performed by TRC in August 2022. The newly installed groundwater monitoring wells were sampled monthly from January 2023 through August 2023, to collect eight rounds of background monitoring data. The groundwater monitoring system was revised and certified pursuant to 40 CFR §257.91(f). The certification was posted in the Station's operating record on September 29, 2023, pursuant to 40 CFR §257.105 (h)(3).
- Conducted the first semiannual 2023 detection monitoring between March 20-21, 2023, and completed the sample analyses on April 3, 2023, pursuant to the CCR Rule [§257.94(b)].
- On September 29, 2023, a successful ASD was placed in the Station's operating record per 40 CFR §257.94(e)(2) for the potential SSIs identified during the first semiannual 2023 detection monitoring event. The ASD was certified by a South Carolina-registered professional engineer. As required by

40 CFR §257.94(e)(2), a copy of the ASD is included in this Report and provided in **Appendix B**. DESC continued with detection monitoring in accordance with 40 CFR §257.94.

- Conducted the second semiannual 2023 detection monitoring on October 3, 2023, in accordance with the revised groundwater monitoring system, and completed the sample analyses on October 18, 2023, pursuant to the CCR Rule [§257.94(b)].
- Completed a baseline statistical evaluation in November 2023 to meet the requirements of 40 CFR 257.91 for the revised CCR Compliance Monitoring Well Network.
- The Unit remained in detection monitoring for the duration of 2023.

1.4 Monitoring Program Concerns

There were no monitoring program concerns identified during 2023.

Section 2
Site Information

2.1 Monitoring Well Network

The Unit utilizes groundwater monitoring wells that were previously installed at the Station for the original FGD Pond. This includes monitoring wells MW-FGD-16, MW-FGD-17, MW-FGD-18, MW-FGD-19D, MW-FGD-20AR, and MW-FGD-21.

From August 2022 through August 2023, TRC performed a network evaluation to assess the current CCR monitoring well network for the Unit. As part of this evaluation, three new monitoring wells (MW-FGD-22, MW-FGD-23, and MW-FGD-24) were installed in January 2023 and were used to assist with groundwater flow of the Unit while the network evaluation was being performed. Based on this evaluation, the following revisions were made to refine the CCR monitoring well network:

- MW-FGD-19 was abandoned and removed from the CCR monitoring well network. The monitoring well was determined to be screened in clay fill material.
- New monitoring well MW-FGD-22 was installed along the southern edge of the Unit boundary as previously no coverage existed in this area. MW-FGD-22 was determined to not be upgradient of the Unit and was selected for the purpose of measuring water levels only.
- New monitoring wells MW-FGD-23 and MW-FGD-24 were installed along the western edge of the Unit boundary as previously no coverage existed in this area. MW-FGD-23 and MW-FGD-24 were incorporated into the CCR monitoring well network.

Pursuant to 40 CFR §257.91, these new monitoring wells were sampled monthly from January 2023 through August 2023. Sampling of monitoring well MW-FGD-22 stopped in June 2023 as it was determined to not be downgradient of the CCR Unit.

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

- Background monitoring wells - MW-FGD-16 and MW-FGD-21.
- Downgradient monitoring wells - MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR.

The location of the 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-23 and MW-FGD-24.
- Downgradient monitoring wells - MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR.

The location of the 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

DESC installed three new monitoring wells (MW-FGD-22, MW-FGD-23, and MW-FGD-24) in January 2023. Monitoring wells MW-FGD-23, and MW-FGD-24 were incorporated into the certified groundwater monitoring system. DESC decommissioned MW-FGD-19 in the certified groundwater monitoring system in January 2023.

2.3 Groundwater Potentiometric Surface Evaluation

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

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

Where:

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

The groundwater seepage velocity was calculated using the following formula:

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

Where:

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

The result for each semiannual event is presented separately in Sections 2.3.1 and 2.3.2. As presented, the estimated groundwater seepage velocity in the uppermost aquifer beneath the Unit is between 64 to 66 ft/year. Furthermore, the overall interpreted data indicates that the groundwater flow direction remain consistent with previous calculations for the Unit. The groundwater flow velocities calculated in 2023 were higher than previous years due to additional information obtained from the new monitoring wells (MW-FGD-22, MW-FGD-23, and MW-FGD-24) and the removal of MW-FGD-19. 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 20, 2023 is presented in **Figure 4**. Using an estimated effective porosity value of 18% and estimated average hydraulic conductivity value of 7.05 ft/day, the average rate of groundwater flow for the uppermost aquifer beneath the Unit was calculated to be 66.16 ft/year.

Well 1	Well 2	h^1 (ft)	h^2 (ft)	S (ft)	i	K (ft/day)	n_e	Vs (ft/day)	Vs (ft/yr.)
MW-FGD-24	MW-FGD-19D	4.46	3.51	385	0.0025	7.05	0.18	0.0966	35.28
MW-FGD-17	MW-FGD-18	4.53	2.99	165	0.0093			0.3656	133.43
MW-FGD-22	MW-FGD-20AR	4.49	3.24	215	0.0058			0.2277	83.12
MW-FGD-23	MW-FGD-19D	4.54	3.51	410	0.0025			0.0984	35.92
MW-FGD-24	MW-FGD-20AR	4.46	3.24	405	0.0030			0.1180	43.07
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		0.1813	66.16

2.3.2 Second Semiannual 2023 Detection Monitoring Program

The groundwater potentiometric surface map for October 3, 2023 is presented in **Figure 5**. Using an estimated effective porosity value of 18% and estimated average hydraulic conductivity value of 7.05 ft/day, the average rate of groundwater flow for the uppermost aquifer beneath the Unit was calculated to be 63.57 ft/year.

Well 1	Well 2	h^1 (ft)	h^2 (ft)	S (ft)	i	K (ft/day)	n_e	Vs (ft/day)	Vs (ft/yr.)
MW-FGD-24	MW-FGD-19D	4.53	3.53	385	0.0026	7.05	0.18	0.1017	37.13
MW-FGD-17	MW-FGD-18	4.42	2.99	165	0.0087			0.3395	123.90
MW-FGD-22	MW-FGD-20AR	4.49	3.33	215	0.0054			0.2113	77.13
MW-FGD-23	MW-FGD-19D	4.60	3.53	410	0.0026			0.1022	37.31
MW-FGD-24	MW-FGD-20AR	4.53	3.33	405	0.0030			0.1161	42.36
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		0.1742	63.57

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 sampling 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 20 - 21, 2023	April 4, 2023
Second Semiannual Detection Monitoring Program Event	October 3, 2023	October 18, 2023

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

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

Section 4
Laboratory Analytical Results

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

4.1 First Semiannual 2023 Detection Monitoring Program Event

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

4.2 Second Semiannual 2023 Detection Monitoring Program Event

The groundwater samples collected during the second 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 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 MW-FGD-17 on March 20, 2023.
- Additional sample volume was collected at MW-FGD-17 on March 20, 2023, to allow for the laboratory to conduct a matrix spike (MS) and matrix spike duplicate (MSD) quality control check.
- A field blank was collected at MW-FGD-19D on March 20, 2023, and MW-FGD-16 on March 21, 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 with the provided data qualifiers. 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 the MW-FGD-24 location on October 3, 2023.
- Additional sample volume was collected at MW-FGD-20AR on October 3, 2023, to allow for the laboratory to conduct a MS/MSD quality control check.
- A field blank was collected near MW-FGD-18 on October 3, 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 with the provided data qualifiers. 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**):

- Boron (MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR)
- Calcium (MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR)
- Chloride (MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR)
- pH (MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR)
- Sulfate (MW-FGD-20AR)
- TDS (MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR)

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**). The specific background values were updated for the new certified network established in September 2023. Based on that evaluation, no SSIs were identified for the second semiannual 2023 event (**Table 3**).

Section 7
Conclusions

7.1 Findings

The first semiannual 2023 DMP compliance sampling event was conducted on March 20-21, 2023, with sample analyses completed on April 4, 2023. The second semiannual 2023 DMP compliance sampling event was conducted on October 3, 2023, with sample analyses completed on October 18, 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 exceedances above the background value for boron, calcium, chloride, pH, sulfate, and TDS. DESC completed a successful ASD for the potential SSI identified during the first semiannual 2023 detection monitoring event. The ASD was certified by a South Carolina-registered professional engineer and presented in this Report (**Appendix B**). Monitoring results from the second semiannual 2023 event identified no exceedances above the background values.

7.2 Planned Activities

Based on the results from the 2023 monitoring activities, DESC intends to continue with semiannual detection groundwater monitoring activities in 2024 that are consistent with the provisions in the CCR Rule [Part 257.94].

Section 8
References

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TRC 2023a. Groundwater Monitoring Well Installation Report, Williams Station New FGD Pond, Berkely County, South Carolina: TRC Environmental Corporation

TRC 2023b. Groundwater Monitoring System Certification, Williams Station New FGD Pond, Berkely County, South Carolina: TRC Environmental Corporation

TRC 2023c. Baseline Statistical Evaluation Report, Williams Station New FGD Pond, Berkely County, South Carolina: TRC Environmental Corporation

Section 9
Signature Page

This *2023 CCR Annual Groundwater Monitoring and Corrective Action Report* (Report) has been prepared by a qualified groundwater scientist on behalf of Dominion Energy South Carolina (DESC) for the Williams Generating Station New 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 - Williams Station New FGD Pond
Goose Creek, Berkeley 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-16	12.70	4/28/2021	9.11	3.59
		5/18/2021	9.21	3.49
		6/9/2021	8.53	4.17
		6/30/2021	8.65	4.05
		7/21/2021	8.40	4.30
		8/10/2021	8.43	4.27
		9/2/2021	7.03	5.67
		9/23/2021	7.61	5.09
		3/21/2022	9.11	3.59
		9/19/2022	8.37	4.33
		3/20/2023	8.67	4.03
		4/13/2023	8.40	4.30
		5/18/2023	8.62	4.08
		6/15/2023	8.64	4.06
		7/20/2023	7.92	4.78
		8/21/2023	8.20	4.50
		10/3/2023	8.64	4.06
MW-FGD-17	11.98	4/28/2021	7.56	4.42
		5/18/2021	7.61	4.37
		6/9/2021	7.44	4.54
		6/30/2021	7.40	4.58
		7/21/2021	7.45	4.53
		8/10/2021	7.22	4.76
		9/2/2021	7.55	4.43
		9/23/2021	7.05	4.93
		3/21/2022	7.77	4.21
		9/19/2022	7.53	4.45
		3/20/2023	7.45	4.53
		4/13/2023	7.41	4.57
		5/18/2023	7.53	4.45
		6/15/2023	7.65	4.33
		7/20/2023	7.39	4.59
		8/21/2023	7.30	4.68
		10/3/2023	7.56	4.42
MW-FGD-18	11.64	4/28/2021	9.48	2.16
		5/18/2021	8.31	3.33
		6/9/2021	9.41	2.23
		6/30/2021	7.75	3.89
		7/21/2021	9.64	2.00
		8/10/2021	8.95	2.69
		9/2/2021	8.23	3.41
		9/23/2021	7.90	3.74
		3/21/2022	9.30	2.34
		9/19/2022	8.51	3.13
		3/20/2023	8.65	2.99
		4/13/2023	8.31	3.33
		5/18/2023	9.03	2.61
		6/15/2023	8.41	3.23
		7/20/2023	9.36	2.28
		8/21/2023	9.75	1.89
		10/3/2023	8.65	2.99

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

Table 1
Summary of Historical CCR Static Water Level Data
Dominion Energy South Carolina - Williams Station New FGD Pond
Goose Creek, Berkeley 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-19	12.49	4/28/2021	9.17	3.32
		5/18/2021	9.54	2.95
		6/9/2021	9.89	2.60
		6/30/2021	10.39	2.10
		7/21/2021	11.69	0.80
		8/10/2021	11.62	0.87
		9/2/2021	12.19	0.30
		9/23/2021	11.73	0.76
		3/21/2022	10.70	1.79
		9/19/2022	8.37	4.12
		Abandoned 1/5/2023		
MW-FGD-19D	12.56	4/28/2021	8.82	3.74
		5/18/2021	9.31	3.25
		6/9/2021	9.01	3.55
		6/30/2021	9.10	3.46
		7/21/2021	9.12	3.44
		8/10/2021	8.95	3.61
		9/2/2021	8.92	3.64
		9/23/2021	8.45	4.11
		3/21/2022	9.11	3.45
		9/19/2022	9.10	3.46
		3/20/2023	9.05	3.51
		4/13/2023	9.28	3.28
		5/18/2023	8.90	3.66
		6/15/2023	9.05	3.51
		7/20/2023	9.11	3.45
		8/21/2023	8.80	3.76
		10/3/2023	9.03	3.53
MW-FGD-20AR	9.39	4/28/2021	5.75	3.64
		5/18/2021	6.21	3.18
		6/9/2021	6.12	3.27
		6/30/2021	6.10	3.29
		7/21/2021	6.15	3.24
		8/10/2021	5.87	3.52
		9/2/2021	6.19	3.20
		9/23/2021	5.78	3.61
		3/21/2022	6.09	3.30
		9/19/2022	6.07	3.32
		3/20/2023	6.15	3.24
		4/13/2023	6.12	3.27
		5/18/2023	5.78	3.61
		6/15/2023	6.05	3.34
		7/20/2023	6.00	3.39
		8/21/2023	5.85	3.54
		10/3/2023	6.06	3.33

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

Table 1
Summary of Historical CCR Static Water Level Data
Dominion Energy South Carolina - Williams Station New FGD Pond
Goose Creek, Berkeley 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-21	13.80	4/28/2021	10.75	3.05
		5/18/2021	10.46	3.34
		6/9/2021	9.44	4.36
		6/30/2021	9.66	4.14
		7/21/2021	9.41	4.39
		8/10/2021	9.62	4.18
		9/2/2021	9.82	3.98
		9/23/2021	8.46	5.34
		3/21/2022	10.07	3.73
		9/19/2022	9.39	4.41
		3/20/2023	9.49	4.31
		4/13/2023	9.24	4.56
		5/18/2023	9.50	4.30
		6/15/2023	9.62	4.18
		7/20/2023	8.76	5.04
		8/21/2023	9.10	4.70
		10/3/2023	9.66	4.14
MW-FGD-22	12.28	1/17/2023	7.93	4.35
		2/15/2023	7.46	4.82
		3/20/2023	7.79	4.49
		4/13/2023	7.66	4.62
		5/18/2023	7.78	4.50
		6/15/2023	7.75	4.53
		7/20/2023	7.47	4.81
		8/21/2023	7.56	4.72
		10/3/2023	7.79	4.49
MW-FGD-23	12.59	1/17/2023	8.21	4.38
		2/15/2023	7.65	4.94
		3/20/2023	8.05	4.54
		4/13/2023	8.97	3.62
		5/18/2023	8.01	4.58
		6/15/2023	7.99	4.60
		7/20/2023	7.77	4.82
		8/21/2023	7.94	4.65
		10/3/2023	7.99	4.60
MW-FGD-24	12.65	1/17/2023	8.29	4.36
		2/15/2023	7.91	4.74
		3/20/2023	8.19	4.46
		4/13/2023	8.04	4.61
		5/18/2023	8.12	4.53
		6/15/2023	8.09	4.56
		7/20/2023	7.95	4.70
		8/21/2023	7.90	4.75
		10/3/2023	8.12	4.53

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

Table 1
Summary of Historical CCR Static Water Level Data
Dominion Energy South Carolina - Williams Station New FGD Pond
Goose Creek, Berkeley County, South Carolina

Monitoring Well ID	Top of Casing Elevation (ft. AMSL)	Date	Depth to Water (feet)	Static Water Level Elevation (ft. AMSL)
GW-01R	13.97	5/18/2021	10.84	3.13
		6/9/2021	10.60	3.37
		6/30/2021	10.60	3.37
		7/21/2021	10.60	3.37
		8/10/2021	10.13	3.84
		9/2/2021	10.67	3.30
		9/23/2021	10.29	3.68
		3/21/2022	10.61	3.36
		9/19/2022	10.52	3.45
		3/20/2023	10.65	3.32
		4/13/2023	10.56	3.41
		5/18/2023	10.26	3.71
		6/15/2023	10.45	3.52
		7/20/2023	10.50	3.47
		8/21/2023	10.20	3.77
		10/3/2023	10.60	3.37
GW-02R	14.71	5/18/2021	11.50	3.21
		6/9/2021	11.31	3.40
		6/30/2021	11.28	3.43
		7/21/2021	11.34	3.37
		8/10/2021	10.82	3.89
		9/2/2021	11.34	3.37
		9/23/2021	11.38	3.33
		3/21/2022	11.26	3.45
		9/19/2022	11.25	3.46
		3/20/2023	11.33	3.38
		4/13/2023	11.26	3.45
		5/18/2023	11.02	3.69
		6/15/2023	11.15	3.56
		7/20/2023	11.25	3.46
		8/21/2023	10.93	3.78
		10/3/2023	11.30	3.41
GW-04A	14.58	5/18/2021	10.58	4.00
		6/9/2021	10.21	4.37
		6/30/2021	10.27	4.31
		7/21/2021	10.15	4.43
		8/10/2021	10.04	4.54
		9/2/2021	10.35	4.23
		9/23/2021	10.41	4.17
		3/21/2022	10.69	3.89
		9/19/2022	10.11	4.47
		3/20/2023	10.39	4.19
		4/13/2023	10.16	4.42
		5/18/2023	10.30	4.28
		6/15/2023	10.31	4.27
		7/20/2023	9.82	4.76
		8/21/2023	9.95	4.63
		10/3/2023	10.28	4.30

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

Table 1
Summary of Historical CCR Static Water Level Data
Dominion Energy South Carolina - Williams Station New FGD Pond
Goose Creek, Berkeley County, South Carolina

Monitoring Well ID	Top of Casing Elevation (ft. AMSL)	Date	Depth to Water (feet)	Static Water Level Elevation (ft. AMSL)
GW-06R	15.08	5/18/2021	10.59	4.49
		6/9/2021	10.21	4.87
		6/30/2021	10.28	4.80
		7/21/2021	10.22	4.86
		8/10/2021	10.03	5.05
		9/2/2021	10.40	4.68
		9/23/2021	10.55	4.53
		3/21/2022	10.59	4.49
		9/19/2022	10.09	4.99
		3/20/2023	10.29	4.79
		4/13/2023	10.09	4.99
		5/18/2023	10.22	4.86
		6/15/2023	10.21	4.87
		7/20/2023	9.82	5.26
		8/21/2023	9.96	5.12
		10/3/2023	10.30	4.78
GW-07R	15.52	5/18/2021	12.86	2.66
		6/9/2021	11.65	3.87
		6/30/2021	11.94	3.58
		7/21/2021	11.45	4.07
		8/10/2021	11.64	3.88
		9/2/2021	11.93	3.59
		9/23/2021	12.01	3.51
		3/21/2022	12.17	3.35
		9/19/2022	11.50	4.02
		3/20/2023	11.35	4.17
		4/13/2023	10.13	5.39
		5/18/2023	11.27	4.25
		6/15/2023	11.45	4.07
		7/20/2023	10.81	4.71
		8/21/2023	11.03	4.49
		10/3/2023	11.77	3.75
GW-08	15.20	5/18/2021	11.57	3.63
		6/9/2021	11.25	3.95
		6/30/2021	11.34	3.86
		7/21/2021	11.33	3.87
		8/10/2021	11.15	4.05
		9/2/2021	11.52	3.68
		9/23/2021	11.39	3.81
		3/21/2022	11.54	3.66
		9/19/2022	11.45	3.75
		3/20/2023	11.30	3.90
		4/13/2023	10.32	4.88
		5/18/2023	11.43	3.77
		6/15/2023	11.41	3.79
		7/20/2023	10.27	4.93
		8/21/2023	11.26	3.94
		10/3/2023	11.36	3.84

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

Table 2
Summary of First Semiannual 2023 Detection Monitoring Program Sampling Event Data
Dominion Energy South Carolina - Williams Station New FGD Pond
Goose Creek, Berkeley County, South Carolina

			Background Wells								Downgradient Wells																	
		Sample ID:	MW-FGD-16				MW-FGD-21				MW-FGD-17				MW-FGD-17 Duplicate				MW-FGD-18				MW-FGD-19D				MW-FGD-20AR			
		Sample Date:	03/21/2023				03/21/2023				03/20/2023				03/20/2023				03/20/2023				03/20/2023				03/20/2023			
Parameter Name	**Units**	**Background Threshold Values**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**
CCR Appendix III																														
Boron	µg/L	66.7	**37.4**		4.00	15.0	**20.0**		4.00	15.0	**146**		4.00	15.0	**145**		4.00	15.0	**3620**		200	750	**2080**		200	750	**3410**		200	750
Calcium	µg/L	41,700	**15,200**		30.0	100	**45,600**		300	1000	**167,000**		300	1000	**151,000**		300	1000	**236,000**		1500	5000	**134,000**		1500	5000	**280,000**		1500	5000
Chloride	mg/L	33.3	**28.4**		0.335	1.00	**3.27**		0.0670	0.200	**110**		1.68	5.00	**110**		3.35	10.0	**1,410**		8.38	25.0	**645**		8.38	25.0	**563**		13.4	40.0
Fluoride	mg/L	0.646	**0.193**		0.0330	0.100	0.0330	U	0.0330	0.100	**0.526**		0.0330	0.100	**0.453**		0.0330	0.100	**0.611**		0.0330	0.100	**0.453**		0.0330	0.100	**0.0906**	J	0.0330	0.100
pH	SU	4.67 - 5.82	5.09		0.01	0.01	5.82		0.01	0.01	6.46		0.01	0.01	--		--	--	6.72		0.01	0.01	6.79		0.01	0.01	6.53		0.01	0.01
Sulfate	mg/L	89.2	**57.4**		0.665	2.00	**85.0**		1.33	4.00	**48.6**		3.33	10.0	**47.6**		6.65	20.0	**60.2**		16.6	50.0	**38.1**		0.665	2.00	**160**		26.6	80.0
Total Dissolved Solids	mg/L	329	**184**		2.38	10.0	**238**		2.38	10.0	**896**		4.76	20.0	**902**		4.76	20.0	**2,560**		23.8	100	**1,060**		23.8	100	**1,280**		23.8	100
Field Parameters																														
Conductivity	µS/cm	--	300.96		0.1	0.1	439.23		0.1	0.1	1,481.0		0.1	0.1	--		--	--	5,448.9		0.1	0.1	2,646.1		0.1	0.1	2,802.5		0.1	0.1
Dissolved Oxygen	mg/L	--	1.64		0.01	0.01	0.69		0.01	0.01	0.15		0.01	0.01	--		--	--	0.14		0.01	0.01	0.10		0.01	0.01	0.23		0.01	0.01
Temperature	C	--	18.94		0.01	0.01	18.87		0.01	0.01	18.14		0.01	0.01	--		--	--	19.79		0.01	0.01	21.97		0.01	0.01	18.92		0.01	0.01
Turbidity	NTU	--	1.84		0.1	0.1	21.9		0.1	0.1	2.39		0.1	0.1	--		--	--	1.82		0.1	0.1	20.2		0.1	0.1	4.91		0.1	0.1
Depth to Water*	ft btoc	--	8.67		0.01	0.01	9.49		0.01	0.01	7.45		0.01	0.01	--		--	--	8.65		0.01	0.01	9.05		0.01	0.01	6.15		0.01	0.01
Groundwater Elevation*	ft msl	--	4.03		0.01	0.01	4.31		0.01	0.01	4.53		0.01	0.01	--		--	--	2.99		0.01	0.01	3.51		0.01	0.01	3.24		0.01	0.01
Oxidation Reduction Potential	millivolts	--	153.1		0.1	0.1	-1.8		0.1	0.1	-18.0		0.1	0.1	--		--	--	-109.5		0.1	0.1	-86.1		0.1	0.1	-20.2		0.1	0.1

Notes:
MDL = Method Detection Limit
QL = Quantitation Limit
mg/L = Milligram per liter
pCi/L = Picocurries 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
CCR = Coal Combustion Residuals

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

= Concentration greater than Background Threshold Values

Bold font = Detected constituent
* - Groundwater Elevation data collected on March 20, 2023

Table 3
Summary of Second Semiannual 2023 Detection Monitoring Program Sampling Event Data
Dominion Energy South Carolina - Williams Station New FGD Pond
Goose Creek, Berkeley County, South Carolina

			Background Wells												Downgradient Wells											
		Sample ID:	MW-FGD-23				MW-FGD-24				MW-FGD-24 Duplicate				MW-FGD-18				MW-FGD-19D				MW-FGD-20AR			
		Sample Date:	10/03/2023				10/03/2023				10/03/2023				10/03/2023				10/03/2023				10/03/2023			
Parameter Name	**Units**	**Background Threshold Values**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**
CCR Appendix III																										
Boron	µg/L	31,100	**23,500**		800	3000	**24,400**		800	3000	**24,200**		800	3000	**5,470**		200	750	**2,280**		200	750	**3,950**		200	750
Calcium	µg/L	2,380,000	**1,630,000**		6000	20000	**1,760,000**		6000	20000	**1,740,000**		6000	20000	**334,000**		1500	5000	**168,000**		1500	5000	**328,000**		1500	5000
Chloride	mg/L	5,290	**3,300**		67.0	200	**3,390**		67.0	200	**3,510**		67.0	200	**1,550**		26.8	80.0	**684**		13.4	40.0	**671**		6.70	20.0
Fluoride	mg/L	0.938	0.379	U	0.379	0.500	0.440	U	0.440	0.440	0.439	U	0.439	0.500	0.67	U	0.670	0.670	0.612	U	0.612	0.612	0.331	U	0.331	0.331
pH	SU	5.3 - 7.1	6.16		0.01	0.01	5.87		0.01	0.01	--		--	--	6.50		0.01	0.01	7.11		0.01	0.01	6.78		0.01	0.01
Sulfate	mg/L	818	**289**		2.66	8.00	**503**		133	400	**527**		133	400	**86.3**		2.66	8.00	**46.3**		1.33	4.00	**232**		13.3	40.0
Total Dissolved Solids	mg/L	10,800	**7,290**		23.8	100	**6,560**		23.8	100	**6,710**		23.8	100	**3,420**		23.8	100	**1,330**		23.8	100	**1,390**		23.8	100
Field Parameters																										
Conductivity	µS/cm	--	10,545		0.1	0.1	11,404		0.1	0.1	--		--	--	5,884.7		0.1	0.1	2,783.5		0.1	0.1	2,961.9		0.1	0.1
Dissolved Oxygen	mg/L	--	0.04		0.01	0.01	0.05		0.01	0.01	--		--	--	0.12		0.01	0.01	0.04		0.01	0.01	0.05		0.01	0.01
Temperature	C	--	25.79		0.01	0.01	25.6		0.01	0.01	--		--	--	25.33		0.01	0.01	24.48		0.01	0.01	24.73		0.01	0.01
Turbidity	NTU	--	0.58		0.1	0.1	0.63		0.1	0.1	--		--	--	0.43		0.1	0.1	1.45		0.1	0.1	0.46		0.1	0.1
Depth to Water	ft btoc	--	7.99		0.01	0.01	8.12		0.01	0.01	--		--	--	8.65		0.01	0.01	9.03		0.01	0.01	6.06		0.01	0.01
Groundwater Elevation	ft msl	--	4.60		0.01	0.01	4.53		0.01	0.01	--		--	--	2.99		0.01	0.01	3.53		0.01	0.01	3.33		0.01	0.01
Oxidation Reduction Potential	millivolts	--	-105.8		0.1	0.1	-106.2		0.1	0.1	--		--	--	-113.5		0.1	0.1	-134.7		0.1	0.1	-125.7		0.1	0.1

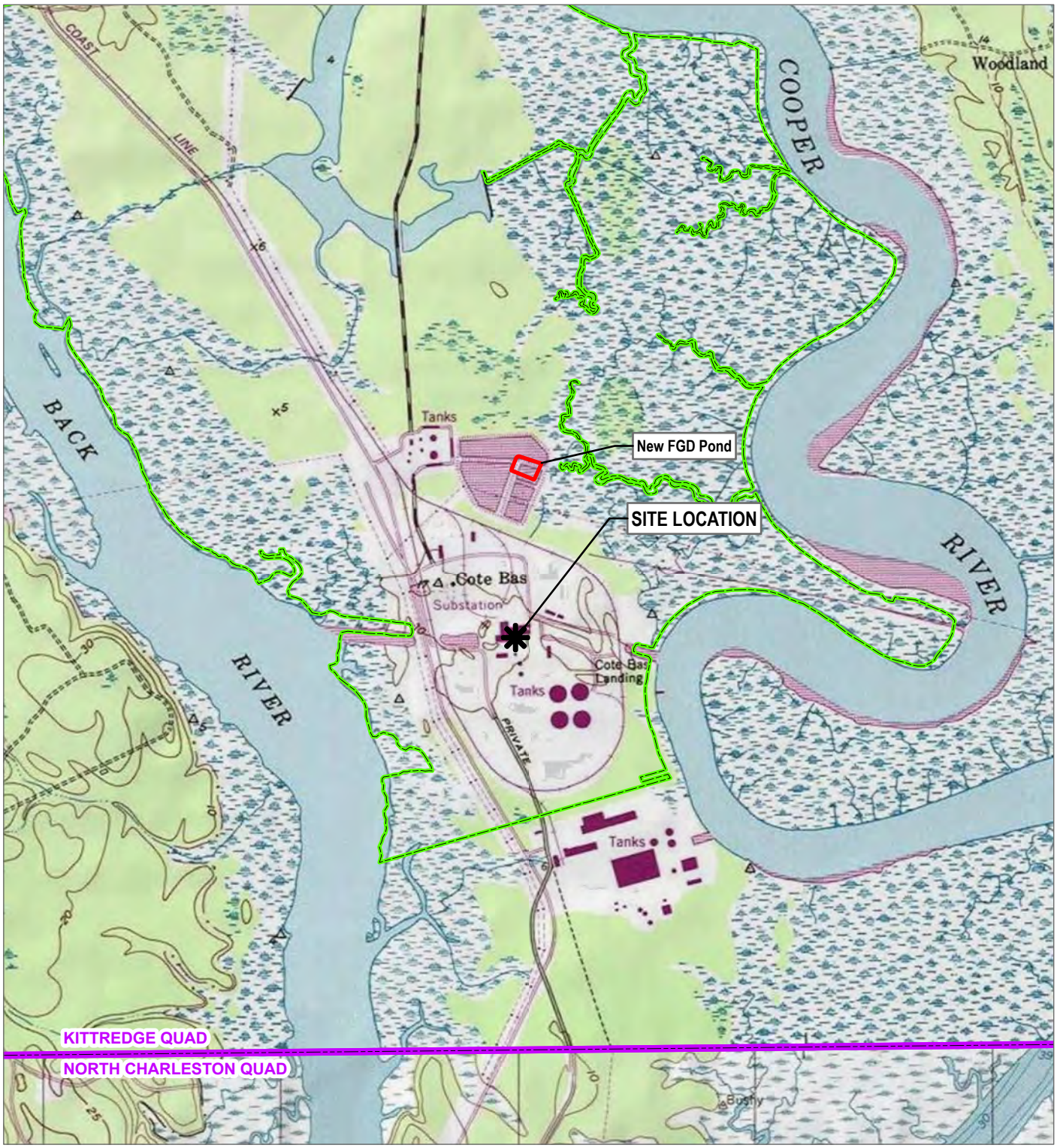
Notes:
MDL = Method Detection Limit
QL = Quantitation Limit
mg/L = Milligram per liter
pCi/L = Picocurries per liter
µg/L = Microgram per liter
µS/cm = MicroSiemen per centimeter
SU = Standard Units
C = Degrees Celsius
NTU = Nephelometric Turbidity Unit
ft btoc = feet below top of casing
ft msl = feet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

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

= Concentration greater than Background Threshold Values

Bold font = Detected constituent

Figures



LEGEND

- SITE LOCATION
- FGD POND BOUNDARY
- USGS 24K QUAD BOUNDARY
- PROPERTY BOUNDARY

BASE MAP: USGS TOPOGRAPHIC MAP SERVICE
DATA SOURCES: TRC

N

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

PROJECT: **DOMINION ENERGY SOUTH CAROLINA**
WILLIAMS STATION
2242 BUSHY PARK ROAD
GOOSE CREEK, SOUTH CAROLINA 29445

TITLE:

SITE LOCATION MAP

DRAWN BY:	L. LILL	PROJ. NO.:	416559.0006.0000
CHECKED BY:	J. YONTS		
APPROVED BY:	R. MAYER		**FIGURE 1**
DATE:	JANUARY 2024		

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

FILE: 2023_FIGURES

COORDINATE SYSTEM: NAD 1983 STATEPLANE SOUTH CAROLINA FIPS 3900 FEET INTL MAP ROTATION: 0
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LEGEND

- CCR BACKGROUND MONITORING WELL
- CCR DOWNGRADIENT MONITORING WELL
- NEW MONITORING WELL INSTALLATION LOCATION
- EVENT PIEZOMETER
- STAFF GAUGE
- NEW FGD POND BOUNDARY
- PROPERTY BOUNDARY

NOTES:

1. AERIAL IMAGE FROM ESRI WORLD IMAGERY DATED OCTOBER, 2022.

N

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1" = 200'
0 100 200 FEET

PROJECT:
DESC WILLIAMS STATION
NEW FGD POND
GOOSE CREEK, SOUTH CAROLINA

TITLE:
CCR RULE COMPLIANCE MONITORING WELL NETWORK - MARCH 2023

DRAWN BY:	L. LILL	PROJ. NO.:	416559.0006.0000
CHECKED BY:	J. YONTS		
APPROVED BY:	R. MAYER		**FIGURE 2**
DATE:	JANUARY 2024		

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

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LEGEND

- CCR BACKGROUND MONITORING WELL
- CCR DOWNGRADIENT MONITORING WELL
- EVENT PIEZOMETER
- NEW FGD POND BOUNDARY
- PROPERTY BOUNDARY

NOTES:

1. AERIAL IMAGE FROM ESRI WORLD IMAGERY DATED OCTOBER, 2022.

1:2,400
1" = 200'
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FEET

PROJECT:
DESC WILLIAMS STATION
NEW FGD POND
GOOSE CREEK, SOUTH CAROLINA

TITLE:
CCR RULE COMPLIANCE MONITORING WELL NETWORK - OCTOBER 2023

DRAWN BY:	L. LILL	PROJ. NO.:	416559.0006.0000
CHECKED BY:	J. YONTS		**FIGURE 3**
APPROVED BY:	R. MAYER		
DATE:	JANUARY 2024		

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GREENVILLE, SC 29615
PHONE: 864.281.0030

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LEGEND

- CCR BACKGROUND MONITORING WELL
- CCR DOWNGRADIENT MONITORING WELL
- NEW MONITORING WELL INSTALLATION LOCATION
- EVENT PIEZOMETER
- STAFF GAUGE
- NEW FGD POND BOUNDARY
- PROPERTY BOUNDARY
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- WATER TABLE ELEVATION IN FEET ABOVE MEAN SEA LEVEL (0.5' CONTOUR INTERVALS) - DASHED WHERE INFERRED
- **4.31** WATER ELEVATION (FT. MSL)

NOTES:

1. AERIAL IMAGE FROM ESRI WORLD IMAGERY DATED OCTOBER, 2022.

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1" = 200'
0 100 200 FEET

PROJECT:	DESC WILLIAMS STATION NEW FGD POND GOOSE CREEK, SOUTH CAROLINA
TITLE:	GROUNDWATER POTENTIOMETRIC SURFACE MAP - MARCH 20, 2023
DRAWN BY: L. LILL	PROJ. NO.: 416559.0006.0000
CHECKED BY: J. YONTS	FIGURE 4
APPROVED BY: R. MAYER	
DATE: JANUARY 2024	

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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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GW-08
3.84

GW-07R
3.75

GW-01R
3.37

POND E
5.77

POND D
5.92

MW-FGD-17
4.42

MW-FGD-24
4.53

MW-FGD-18
2.99

GW-02R
3.41

MW-FGD-23
4.60

MW-FGD-19D
3.53

GW-06R
4.78

POND B
5.62

MW-FGD-22
4.49

MW-FGD-20AR
3.33

MW-FGD-21
4.14

GW-04A
4.30

POND A
7.11

MW-FGD-16
4.06

GW-09
3.40

4.0
4.5
5.0
5.5
3.5

LEGEND

- CCR BACKGROUND MONITORING WELL
- CCR DOWNGRADIENT MONITORING WELL
- EVENT PIEZOMETER
- STAFF GAUGE
- NEW FGD POND BOUNDARY
- PROPERTY BOUNDARY
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- WATER TABLE ELEVATION IN FEET ABOVE MEAN SEA LEVEL (0.5' CONTOUR INTERVALS) - DASHED WHERE INFERRED
- **4.24** WATER ELEVATION (FT. MSL)

NOTES:

1. AERIAL IMAGE FROM ESRI WORLD IMAGERY DATED OCTOBER, 2022.

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1" = 200'
0 100 200 FEET

PROJECT:	DESC WILLIAMS STATION NEW FGD POND GOOSE CREEK, SOUTH CAROLINA
TITLE:	GROUNDWATER POTENTIOMETRIC SURFACE MAP - OCTOBER 3, 2023
DRAWN BY:	L. LILL
CHECKED BY:	J. YONTS
APPROVED BY:	R. MAYER
DATE:	JANUARY 2024
PROJ. NO.:	416559.0006.0000
	FIGURE 5

TRC
50 INTERNATIONAL DRIVE
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GREENVILLE, SC 29615
PHONE: 864.281.0030

FILE: 2023_Figures.aprx

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Appendix A
September 2022 Alternate Source Demonstration

DOMINION ENERGY SOUTH CAROLINA

WILLIAMS STATION NEW FGD POND

BERKELEY COUNTY, SOUTH CAROLINA

EPA CCR RULE COMPLIANCE

ALTERNATE SOURCE DEMONSTRATION REPORT

Second Semiannual 2022 Detection Monitoring Event

March 31, 2023

Nakia W. Addison, P.E.
Senior Engineer

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

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Executive Summary

Dominion Energy South Carolina (DESC) completed the most recent semiannual detection monitoring sampling (second semiannual 2022 sampling event) in September 2022 for the Williams Generating Station (Station) Flue Gas Desulfurization (FGD) Wastewater Pond (New 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 above background concentrations were identified in samples from the second semiannual 2022 sampling event based on direct comparisons made between the statistically derived background threshold values (95 percent upper prediction limit) and the downgradient monitoring results:

- MW-FGD-17: boron, calcium, chloride, pH, and total dissolved solids (TDS)
- MW-FGD-18: boron, calcium, chloride, pH, sulfate, and TDS
- MW-FGD-19D: boron, calcium, chloride, pH, and TDS
- MW-FGD-20AR: boron, calcium, chloride, pH, and TDS

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 are due to the following:

- A potential source located upgradient from the Unit; and/or
- Natural variation in groundwater quality within the area.

Based on 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.

Section 1
Introduction

1.1 Background

Dominion Energy South Carolina (DESC) operates a Flue Gas Desulfurization (FGD) Wastewater Pond (New FGD Pond) (Unit) for the management of coal combustion residuals (CCR) at the Williams Generating Station (Station). The Unit is located at 2242 Bushy Park Road, Goose Creek, Berkley County, South Carolina as shown on **Figure 1**.

The Unit, installed within the boundaries of the original FGD Pond, opened in May 2021 in accordance with the CCR Rule requirements. The Unit is comprised of two 700,000-gallon forebays constructed with a composite liner system comprised of, from bottom to top: an 18-inch-thick compacted clay soil liner; 60-mil textured HDPE geomembrane liner; 28-ounce per square yard geotextile cushion; and 6-inch-thick fabric formed concrete protection layer (CEC 2021a).

The Unit receives wet FGD blowdown from the Station's FGD system. The FGD blowdown contains residual gypsum solids that are discharged from the secondary hydrocyclone overflows and pumped to the Unit. Each forebay within the Unit allows for solids to settle and provide temporary storage until dewatered, removed, and disposed offsite in the Williams Stations Highway 52 Class III Landfill.

The Unit is considered a 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 and has collected samples from the Certified Monitoring Well Network for laboratory analysis for CCR constituents and performed statistical analysis of the collected samples. DESC installed a Certified Monitoring Well Network for the Unit in accordance with 40 CFR §257.90 and §257.91. The location of the EPA CCR Rule Compliance Monitoring Well Network is presented on **Figure 2**. The Certified Monitoring Well Network consists of 6 wells installed into the subsurface to monitor shallow groundwater as follows:

- Two wells were installed as background monitoring wells and include MW-FGD-16 and MW-FGD-21.

- Four wells were installed as compliance monitoring wells and include MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR.

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 (CEC 2021b).

As discussed above, the Unit is currently being monitored pursuant to the CCR Rule. A groundwater sampling and analysis plan including selection of statistical procedures to evaluate groundwater data was prepared per the CCR Rule (Nautilus 2016). Eight independent baseline/detection monitoring background sample events were performed from April 2021 through September 2021 in accordance with 40 CFR §257.93(d) and §257.94(b). The eight baseline/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 background detection monitoring in September 2021, DESC implemented semiannual detection monitoring per 40 CFR §257.94(b) for the Unit. The second semiannual detection monitoring event was performed in September 2022. Per the CCR Rule, the semiannual detection monitoring event samples were analyzed for Appendix III constituents.

After completion of the semiannual detection monitoring event, the Appendix III laboratory analytical data were statistically evaluated to identify potential statistically significant increases (SSIs) for Appendix III constituents above background levels. In accordance with 40 CFR §257.93(f)(6), DESC obtained certification by a qualified South Carolina-registered P.E. stating that the selected statistical method is appropriate for evaluating the groundwater monitoring data for the CCR Unit (CEC 2021c).

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 21 SSIs were identified for seven Appendix III constituents: boron, 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 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 in the outer Coastal Plain of South Carolina. The uppermost aquifer in the Coastal Plain of South Carolina is the unconfined surficial aquifer. In most areas, the surficial aquifer consists of discontinuous layers of sand, clay and locally occurring beds of shell and limestone.

The Unit is located within the Ashley-Cooper River Subbasin (Ashley-Combahee-Edisto (ACE) 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 Cooper geologic formation. The Cooper formation (or Cooper Marl) underlies most of the area south of the Santee River. According to *State of South Carolina Resources Commission Report Number 139* (1985), the Cooper formation is approximately 130 feet thick beneath the site. This unit functions as a confining layer beneath the overlying surficial aquifer. At least three of the hydrogeologic logs for wells installed around the Unit identify the top of Cooper Marl at depths of 19.5 to 28 feet below ground surface, making the surficial aquifer beneath the Unit less than 20 feet in thickness. Groundwater flow beneath the Unit is generally to the east as depicted on **Figure 3**. Hydraulic conductivity values in the surficial aquifer at the Unit range from 4.47×10^{-5} cm/s to 1.08×10^{-2} cm/s with an estimated groundwater flow velocities of between 0.002 to 2.85 feet/day (Nautilus 2021).

1.5 General Groundwater Quality

Regionally, groundwater quality in the Ashley-Cooper River Subbasin consists of a sodium bicarbonate water type grading to a sodium chloride water type with depth and proximity to the coast (SCDNR 2009). 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 secondary drinking water contaminants compared to USEPA secondary MCLs are provided in the table below.

Ashley-Cooper River Subbasin Groundwater Water Quality

Constituent	Concentration Range		USEPA MCL
	Low	High	
pH (s.u.)	4.8	7.2	6.5 – 8.5 (Secondary)
Chloride (mg/L)	2.2	500	250 (Secondary)
Sulfate (mg/L)	1.0	1,000	250 (Secondary)
TDS (mg/L)	20	2,800	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 Ashley-Cooper River Subbasin exceeds the secondary drinking water MCLs for chloride, sulfate, and TDS (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 (CEC 2021c) and the Statistical Analysis Plan. Based on either increasing trends at 95% confidence levels using Thiel-Sen's trend test and/or interwell prediction limits statistical analyses, the following SSIs were identified:

- MW-FGD-17: boron, calcium, chloride, pH, and TDS
- MW-FGD-18: boron, calcium, chloride, pH, sulfate, and TDS
- MW-FGD-19D: boron, calcium, chloride, pH, and TDS
- MW-FGD-20AR: boron, calcium, chloride, pH, and TDS

All other Appendix III constituent concentrations were within their trends at 95% confidence levels using Thiel-Sen's trend and/or interwell prediction limits in all the CCR Rule groundwater 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 Boron at MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR

The boron SSIs identified at MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR are the result of a potential source upgradient from the Unit. The following evidence supports this determination:

- Boron was detected at concentrations greater than the background threshold value of 66.7 µg/L in MW-FGD-17 (256 µg/L), MW-FGD-18 (6,980 µg/L), MW-FGD-19D (1,610 µg/L), and MW-FGD-20AR (1,710 µg/L) during the September 2022 sampling event. Based on review of potentiometric surface mapping (**Figure 3**), the locations of MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR are hydraulically downgradient from Pond D.
- Monitoring wells GW-01R, GW-02R, GW-04A, GW-06R, GW-07R, and GW-08 (**Figure 2**) were previously sampled in May 2022 for total boron concentrations in support of an ASD evaluation. The highest total boron concentration from the May 2022 event (**Table 2**) was detected in upgradient monitoring well GW-04A (20,100 µg/L), suggesting that a potential source of boron upgradient from the Unit may exist.

2.2 Calcium at MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR

The calcium SSIs identified at MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR are the result of natural variation in groundwater quality and/or a potential source upgradient from the Unit. The following evidence supports this determination:

- Calcium was detected at concentrations greater than the background threshold value of 41,700 µg/L in MW-FGD-17 (151,000 µg/L), MW-FGD-18 (391,000 µg/L), MW-FGD-19D (112,000 µg/L), and MW-FGD-20AR (172,000 µg/L) during the September 2022 sampling event. Based on review of potentiometric surface mapping (**Figure 3**), the locations of MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR are hydraulically downgradient from Pond D.
- The calcium concentration in background well MW-FGD-21 was detected above the background threshold value of 41,700 µg/L at a concentration of 45,400 µg/L during the September 2022 sampling event. This observation suggests that the calcium SSIs may be the result of natural variation in groundwater quality from upgradient areas.
- Monitoring wells GW-01R, GW-02R, GW-04A, GW-06R, GW-07R, and GW-08 (**Figure 2**) were previously sampled in May 2022 for total calcium concentrations in support of an ASD evaluation. The highest total calcium concentrations from the May 2022 event (**Table 2**) were detected in upgradient monitoring wells GW-04A (1,290,000 µg/L) and GW-06R (491,000 µg/L), suggesting that a potential source of calcium upgradient from the Unit may exist.

2.3 Chloride at MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR

The chloride SSIs identified at MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR are the result of natural variation in groundwater quality and/or a potential source upgradient from the Unit. The following evidence supports this determination:

- Chloride was detected at concentrations greater than the background threshold value of 33.3 mg/L in MW-FGD-17 (148 mg/L), MW-FGD-18 (1,750 mg/L), MW-FGD-19D (600 mg/L), and MW-FGD-20AR (383 mg/L) during the September 2022 sampling event. Based on review of potentiometric surface mapping (**Figure 3**), the locations of MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR are hydraulically downgradient from Pond D.
- Chloride concentrations detected at MW-FGD-17 and MW-FGD-20AR during the September 2022 sampling event were above the reported regional chloride concentration for groundwater in the Unit area of 500 mg/L (SCDNR 2009). This observation suggests that the chloride SSIs for MW-FGD-17 and MW-FGD-20AR are the result of natural variation in groundwater quality from upgradient areas.
- Monitoring wells GW-01R, GW-02R, GW-04A, GW-06R, GW-07R, and GW-08 (**Figure 2**) were previously sampled in May 2022 for chloride concentrations in support of an ASD evaluation. The highest chloride concentration from the May 2022 event (**Table 2**) was detected in upgradient

monitoring well GW-04A (2,820 µg/L), suggesting that a potential source of chloride upgradient from the Unit may exist.

2.4 pH at MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR

The pH SSIs identified at MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR are the result of natural variation in groundwater quality from areas upgradient from the Unit. The following evidence supports this:

- The pH levels were detected at levels greater than the background threshold range for pH of 4.67 to 5.82 at MW-FGD-17 (6.18), MW-FGD-18 (6.11), MW-FGD-19D (6.85), and MW-FGD-20AR (6.47) during the September 2022 sampling event. Reported regional pH levels for groundwater in the Unit area range between 4.8 and 7.2 (SCDNR 2009). The pH levels within MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR from September 2022 all fall within the range of natural variation in area groundwater quality.

2.5 Sulfate at MW-FGD-18

The sulfate SSIs identified at MW-FGD-18 is the result of natural variation in groundwater quality from areas upgradient from the Unit. The following evidence supports this determination:

- Sulfate was detected at concentrations greater than the background threshold value of 89.2 mg/L at MW-FGD-18 (175 mg/L) during the September 2022 sampling event. Reported regional sulfate concentrations for the groundwater in the Unit area range between 1 mg/L to 1,000 mg/L (SCDNR 2009). The detected sulfate concentrations for MW-FGD-18 falls within the range of natural variation in area groundwater quality.

2.6 Total Dissolved Solids MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR

The TDS SSIs identified at MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR are the result of natural variation in groundwater quality and/or a potential source upgradient from the Unit. The following evidence supports this determination:

- TDS was detected at concentrations greater than the background threshold value of 329 mg/L in MW-FGD-17 (948 mg/L), MW-FGD-18 (3,720 mg/L), MW-FGD-19D (1,320 mg/L), and MW-FGD-20AR (1,270 mg/L) during the September 2022 sampling event. Based on review of potentiometric surface mapping (**Figure 3**), the locations of MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR are hydraulically downgradient from Pond D.
- TDS concentrations detected at MW-FGD-17, MW-FGD-19D, and MW-FGD-20AR during the September 2022 sampling event were above the reported regional TDS concentration for

groundwater in the Unit area of 2,800 mg/L (SCDNR 2009). This observation suggests that the TDS SSIs for MW-FGD-17, MW-FGD-19D, and MW-FGD-20AR are the result of natural variation in groundwater quality from upgradient areas.

- Monitoring wells GW-01R, GW-02R, GW-04A, GW-06R, GW-07R, and GW-08 (**Figure 2**) were previously sampled in May 2022 for TDS in support of an ASD evaluation. The highest TDS concentration from the May 2022 event (**Table 2**) was detected in upgradient monitoring well GW-04A (5,130 mg/L), suggesting that a potential source of TDS upgradient from the Unit may exist.

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 of 2022 was not due to a release from the CCR Unit to the subsurface.

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

Additional observation wells were installed in January 2023 in the vicinity of the Unit to further refine hydrogeologic conditions. The results of the hydrogeological evaluation may be used to help optimize the groundwater monitoring well network for the Unit.

Section 4
Certification

I hereby certify that the alternative source demonstration presented within this document for the DESC Williams New 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 31, 2023

(SEAL)

Section 5
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Figures

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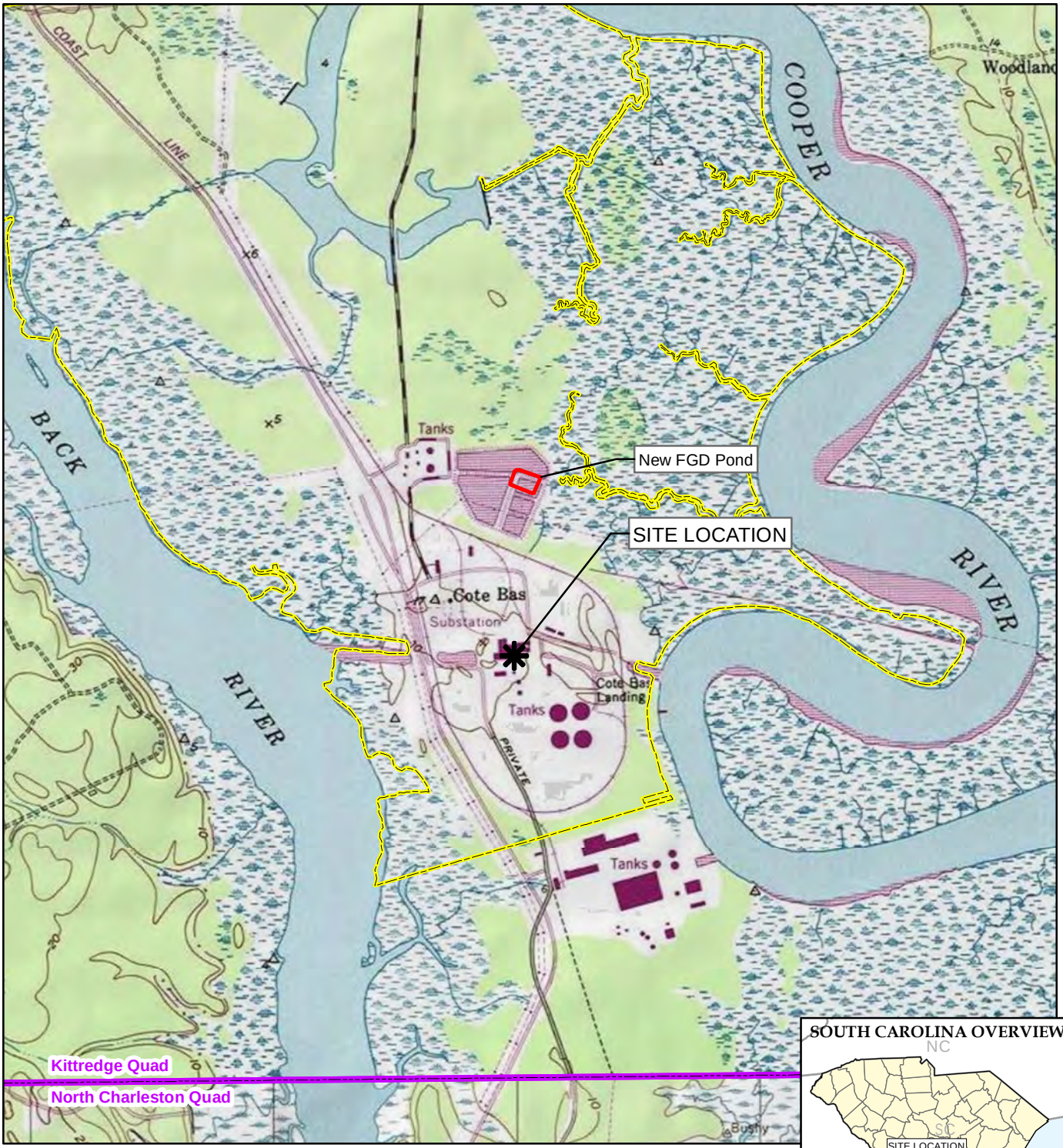
TRC - GIS



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES (KITTREDGE & NORTH CHARLESTON).

N

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

0 1,000 2,000 FEET

SITE LOCATION

PROPERTY BOUNDARY

USGS 24k QUAD BOUNDARY

NEW FGD POND BOUNDARY

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

DOMINION ENERGY SOUTH CAROLINA
WILLIAMS STATION
2242 BUSHY PARK ROAD
GOOSE CREEK, SOUTH CAROLINA 29445

FIGURE 1
SITE LOCATION MAP

DRAWN BY:	J. YONTS
APPROVED BY:	R. MAYER
PROJECT NO:	416559.0006.0000
FILE NO.	Figure1_Site_Location_Map_CCR.mxd
DATE:	MARCH 2023

LEGEND

- CCR Background Monitoring Well
- CCR Downgradient Monitoring Well
- NPDES Monitoring Well
- New FGD Pond Boundary

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

N W E S

0 200 400 Feet

1 " = 200 '
1:2,400

PROJECT:
DESC WILLIAMS STATION
NEW FGD POND
GOOSE CREEK, SOUTH CAROLINA

TITLE:
CCR RULE COMPLIANCE
MONITORING WELL NETWORK

DRAWN BY:	J. YONTS	PROJ. NO.:	416559.0006.0000
CHECKED BY:	D. SZYNAL		
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_Williams_Station_FGD_CCR_Well_Network.mxd

Plot Date: 3/29/2023, 13:56:51 PM by JYONTS -- LAYOUT: ANSI B (11"x17")
Path: T:\1-PROJECTS\Dominion\South_Carolina\6_Williams_SC\Williams Station\2023\Figure2_Williams_Station_FGD_CCR_Well_Network.mxd
Coordinate System: NAD 1983 StatePlane South Carolina FIPS 3900 Feet (Foot US)
Map Rotation: 0
TRC - GIS

GW-08
3.75

GW-07R
4.02

4.0

Pond E

3.5

GW-01R
3.45

4.5

MW-FGD-17
4.45

MW-FGD-18*
3.13

Forebay 2

GW-02R
3.46

Forebay 1

Pond D

MW-FGD-19D
3.46

GW-06R
4.99

MW-FGD-20AR
3.32

Pond B

3.5

4.5

MW-FGD-21
4.41

GW-04A
4.47

Pond A

4.0

MW-FGD-16
4.33

LEGEND

- CCR Background Monitoring Well
- CCR Downgradient Monitoring Well
- NPDES Monitoring Well
- New FGD Pond Boundary
- Water Table Elevation in feet above mean sea level (0.5' Contour Intervals) - Dashed where inferred.
- **4.33** Water Elevation (FT MSL)
- Approximate Groundwater Flow Direction

NOTE:
1) Aerial Image from ESRI World Imagery dated March 2022.
2) *Water level not used for contouring

N
W E
S

0 200 400 Feet

1 " = 200 '
1:2,400

PROJECT:
DESC WILLIAMS STATION
NEW FGD POND
GOOSE CREEK, SOUTH CAROLINA

TITLE:
GROUNDWATER POTENTIOMETRIC SURFACE MAP - SEPTEMBER 19, 2022

DRAWN BY:	J. YONTS	PROJ. NO.:	416559.0006.0000
CHECKED BY:	J. BRADLEY		
APPROVED BY:	R. MAYER		**FIGURE 3**
DATE:	MARCH 2023		

TRC
50 International Drive, Suite 150
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Greenville, SC 29615
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www.TRCcompanies.com

FILE NO.: Figure3_Williams_FGD_CCR_WT_2022Q3.mxd

Plot Date: 3/29/2023, 13:38:19 PM by JYONTS -- LAYOUT: ANSI B (11"x17")
Path: T:\11-PROJECTS\Dominion\South Carolina\6 Williams SC\Williams Station\2022\Figure3 Williams FGD CCR WT 2022Q3.mxd
Coordinate System: NAD 1983 StatePlane South Carolina FIPS 3900 Feet (Foot US)
Map Rotation: 0

TRC - GIS

Tables

Table 1
Summary of Second Semiannual 2022 Detection Monitoring Program Sampling Event Data
Dominion Energy South Carolina - Williams Station New FGD Pond
Goose Creek, Berkeley County, South Carolina

			Background Wells								Downgradient Wells							
		Sample ID:	MW-FGD-16				MW-FGD-21				MW-FGD-17				MW-FGD-18			
		Sample Date:	09/20/2022				09/21/2022				09/19/2022				09/19/2022			
Parameter Name	**Units**	**Background Threshold Values**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**
CCR Appendix III																		
Boron	µg/L	66.7	**51.4**		4.00	15.0	**32.8**		4.00	15.0	**256**		20.0	75.0	**6980**		200	750
Calcium	µg/L	41700	**15100**		30.0	100	**45400**		30.0	100	**151000**		150	500	**391000**		1500	5000
Chloride	mg/L	33.3	**24.5**		0.335	1.00	**3.01**		0.0670	0.200	**148**		1.68	5.00	**1750**		26.8	80.0
Fluoride	mg/L	0.646	**0.330**		0.0330	0.100	**0.0470**	J	0.0330	0.100	**0.511**		0.0330	0.100	**0.420**		0.0330	0.100
pH	SU	4.67 - 5.82	4.80		0.1	0.1	5.32		0.1	0.1	6.18		0.1	0.1	6.11		0.1	0.1
Sulfate	mg/L	89.2	**48.9**		0.665	2.00	**84.8**		1.33	4.00	**15.9**		0.133	0.400	**175**		53.2	160
Total Dissolved Solids	mg/L	329	**193**		2.38	10.0	**243**		2.38	10.0	**948**		2.38	10.0	**3720**		2.38	10.0
Field Parameters																		
Conductivity	µS/cm	--	293.07		0.1	0.1	453.15		0.1	0.1	1596		0.1	0.1	6687		0.1	0.1
Dissolved Oxygen	mg/L	--	0.98		0.01	0.01	0.40		0.01	0.01	0.18		0.01	0.01	0.20		0.01	0.01
Temperature	C	--	25.48		0.01	0.01	24.17		0.01	0.01	25.68		0.01	0.01	25.11		0.01	0.01
Turbidity	NTU	--	3.26		0.1	0.1	3.91		0.1	0.1	3.49		0.1	0.1	3.25		0.1	0.1
Depth to Water	ft btoc	--	8.37		0.01	0.01	9.39		0.01	0.01	7.53		0.01	0.01	8.51		0.01	0.01
Groundwater Elevation	ft msl	--	4.33		0.01	0.01	4.41		0.01	0.01	4.45		0.01	0.01	3.13		0.01	0.01
Oxidation Reduction Potential	millivolts	--	104.1		0.1	0.1	45.5		0.1	0.1	-18.0		0.1	0.1	-76.7		0.1	0.1

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

Qualifiers (Qual)
J = Estimated Results

Bold font = Detected constituent
* - Groundwater Elevation data collected on September 19, 2022

= Concentration greater than Background Threshold Values

Table 1
Summary of Second Semiannual 2022 Detection Monitoring Program Sampling Event Data
Dominion Energy South Carolina - Williams Station New FGD Pond
Goose Creek, Berkeley County, South Carolina

			Downgradient Wells											
		Sample ID:	MW-FGD-18 Duplicate				MW-FGD-19D				MW-FGD-20AR			
		Sample Date:	09/19/2022				09/19/2022				09/20/2022			
Parameter Name	**Units**	**Background Threshold Values**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**
CCR Appendix III														
Boron	µg/L	66.7	**6930**		200	750	**1610**		40.0	150	**1710**		40.0	150
Calcium	µg/L	41700	**391000**		1500	5000	**112000**		300	1000	**172000**		300	1000
Chloride	mg/L	33.3	**1800**		26.8	80.0	**600**		6.70	20.0	**383**		6.70	20.0
Fluoride	mg/L	0.646	**0.411**		0.0330	0.100	**0.640**		0.0330	0.100	**0.184**		0.0330	0.100
pH	SU	4.67 - 5.82	6.11		0.1	0.1	6.85		0.1	0.1	6.49		0.1	0.10
Sulfate	mg/L	89.2	**177**		53.2	160	**26.4**		0.665	2.00	**10.5**		0.133	0.400
Total Dissolved Solids	mg/L	329	**3790**		2.38	10.0	**1320**		2.38	10.0	**1270**		2.38	10.0
Field Parameters														
Conductivity	µS/cm	--	6687		0.1	0.1	2894.7		0.1	0.1	3380.3		0.1	0.1
Dissolved Oxygen	mg/L	--	0.20		0.01	0.01	0.16		0.01	0.01	0.12		0.01	0.01
Temperature	C	--	25.01		0.01	0.01	25.55		0.01	0.01	27.67		0.01	0.01
Turbidity	NTU	--	3.25		0.1	0.1	1.88		0.1	0.1	1.87		0.1	0.1
Depth to Water	ft btoc	--	8.51		0.01	0.01	9.10		0.01	0.01	6.07		0.01	0.01
Groundwater Elevation	ft msl	--	3.13		0.01	0.01	3.46		0.01	0.01	3.32		0.01	0.01
Oxidation Reduction Potential	millivolts	--	-76.7		0.1	0.1	-127.3		0.1	0.1	-43.8		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

Bold font = Detected constituent
* - Groundwater Elevation data collected on September 19, 2022
= Concentration greater than Background Threshold Values

Table 2 - Summary of May 2022 Sampling Event Data
Dominion Energy South Carolina - Williams Station New FGD Pond
Goose Creek, Berkeley County, South Carolina

	Sample ID:	GW-01R				GW-02R				GW-04A				GW-06R				GW-07R				GW-08			
	Sample Date:	05/25/2022				05/25/2022				05/25/2022				05/25/2022				05/25/2022				05/25/2022			
Parameter Name	**Units**	**Result**	**Qual**	**MDL**	**RL**	**Result**	**Qual**	**MDL**	**RL**	**Result**	**Qual**	**MDL**	**RL**	**Result**	**Qual**	**MDL**	**RL**	**Result**	**Qual**	**MDL**	**RL**	**Result**	**Qual**	**MDL**	**RL**
CCR Appendix III																									
Boron	µg/L	**11900**		400	1500	**9130**		400	1500	**20100**		800	3000	**6510**		200	750	**3330**		200	750	**7040**		200	750
Calcium	µg/L	**685000**		600	2000	**444000**		600	2000	**1290000**		1500	5000	**491000**		600	2000	**325000**		600	2000	**307000**		600	2000
Chloride	mg/L	**1800**		33.5	100	**1510**		33.5	100	**2820**		33.5	100	**931**		33.5	100	**596**		6.70	20.0	**710**		6.70	20.0
Total Dissolved Solids	mg/L	**3500**		3.40	14.3	**3140**		3.40	14.3	**5130**		3.40	14.3	**2060**		3.40	14.3	**1330**		3.40	14.3	**1350**		3.40	14.3

Notes:
MDL = Method Detection Limit
RL = Reporting Limit
mg/L = Milligram per liter
µg/L = Microgram per liter
Bold font = Detected constituent

Appendix B
March 2023 Alternate Source Demonstration

DOMINION ENERGY SOUTH CAROLINA

WILLIAMS STATION NEW FGD POND

BERKELEY COUNTY, SOUTH CAROLINA

EPA CCR RULE COMPLIANCE

ALTERNATE SOURCE DEMONSTRATION REPORT

First Semiannual 2023 Detection Monitoring Event

September 29, 2023

Nakia W. Addison, P.E.
Senior Engineer

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

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Executive Summary

Dominion Energy South Carolina (DESC) completed the first semiannual 2023 detection monitoring event in March 2023 for the Williams Generating Station (Station) Flue Gas Desulfurization (FGD) Wastewater Pond (New 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 values (95 percent upper prediction limit) and the downgradient monitoring results:

- Boron (MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR).
- Calcium (MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR).
- Chloride (MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR).
- pH (MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR).
- Sulfate (MW-FGD-20AR).
- Total dissolved solids (MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR).

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

- A potential source located upgradient from the Unit; and/or,
- 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 1
Introduction

1.1 Background

Dominion Energy South Carolina (DESC) operates a Flue Gas Desulfurization (FGD) Wastewater Pond (New FGD Pond) (Unit) for the management of coal combustion residuals (CCR) at the Williams Generating Station (Station). The Unit is located at 2242 Bushy Park Road, Goose Creek, Berkley County, South Carolina as shown on **Figure 1**.

The Unit is installed within the boundaries of the original FGD Pond and opened in May 2021 in accordance with the CCR Rule requirements. The Unit is comprised of two 700,000-gallon forebays constructed with a composite liner system comprised of, from bottom to top: an 18-inch-thick compacted clay soil liner; 60-mil textured high-density polyethylene (HDPE) geomembrane liner; 28-ounce per square yard geotextile cushion; and 6-inch-thick fabric formed concrete protection layer (CEC 2021a).

The Unit is considered a 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 EPA CCR Rule Compliance Monitoring Well Network is presented on **Figure 2**. The Certified Monitoring Well Network consists of 6 wells installed into the subsurface to monitor shallow groundwater as follows:

- Two upgradient/background monitoring wells: MW-FGD-16 and MW-FGD-21.
- Four downgradient monitoring wells: MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR.

The first semiannual 2023 detection monitoring event was conducted March 20 – 21, 2023, and were analyzed for Appendix III constituents. Pursuant to 40 CFR §257.93(h), statistical analysis of the laboratory analytical data was performed to identify potential statistically significant increases (SSIs) above background. Data from the first semiannual 2023 detection monitoring event is presented in **Table 1**. SSIs were identified for six Appendix III constituents: boron, 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 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 alternate source demonstration (ASD) for the SSIs identified for the first semiannual 2023 detection monitoring event.

1.4 Site Hydrogeology

The Station is located in the outer Coastal Plain of South Carolina. The uppermost aquifer in the Coastal Plain of South Carolina is the unconfined surficial aquifer. In most areas, the surficial aquifer consists of discontinuous layers of sand, clay and locally occurring beds of shell and limestone.

The Unit is located within the Ashley-Cooper River Subbasin (Ashley-Combahee-Edisto (ACE) 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 Cooper geologic formation. The Cooper formation (or Cooper Marl) underlies most of the area south of the Santee River.

According to *State of South Carolina Resources Commission Report Number 139* (1985), the Cooper formation is approximately 130 feet thick beneath the site. This unit functions as a confining layer beneath the overlying surficial aquifer. At least three of the hydrogeologic logs for wells installed around the Unit identify the top of Cooper Marl at depths of 19.5 to 28 feet below ground surface, making the surficial aquifer beneath the Unit less than 20 feet in thickness. Groundwater flow beneath the Unit is generally to the east as depicted on **Figure 3**. Hydraulic conductivity values in the surficial aquifer at the Unit range from 4.47×10^{-5} cm/s to 1.08×10^{-2} cm/s with an estimated groundwater flow velocities of between 0.002 to 2.85 feet/day (Nautilus 2021).

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 20 – 21, 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 (CEC 2021b). 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:

- Boron (MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR)
- Calcium (MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR)
- Chloride (MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR)
- pH (MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR)
- Sulfate (MW-FGD-20AR)
- TDS (MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR)

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 Boron at MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR

The boron SSIs identified at MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR are the result of a potential source upgradient from the Unit. The following evidence supports this determination:

- Boron was detected at concentrations greater than the background threshold value of 66.7 µg/L in MW-FGD-17 (146 µg/L), MW-FGD-18 (3,620 µg/L), MW-FGD-19D (2,080 µg/L), and MW-FGD-20AR (3,410 µg/L) during the March 2023 sampling event. Based on review of potentiometric surface mapping (**Figure 3**), the locations of MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR are hydraulically downgradient from Pond D.
- Monitoring wells GW-01R, GW-02R, GW-04A, GW-06R, GW-07R, and GW-08 (**Figure 2**) were previously sampled in May 2022 for total boron concentrations in support of an ASD evaluation. The highest total boron concentration from the May 2022 event (**Table 2**) was detected in upgradient monitoring well GW-04A (20,100 µg/L), suggesting that a potential source of boron upgradient from the Unit may exist.

2.2 Calcium at MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR

The calcium SSIs identified at MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR are the result of a potential source upgradient from the Unit. The following evidence supports this determination:

- Calcium was detected at concentrations greater than the background threshold value of 41,700 µg/L in MW-FGD-17 (167,000 µg/L), MW-FGD-18 (236,000 µg/L), MW-FGD-19D (134,000 µg/L), and MW-FGD-20AR (280,000 µg/L) during the March 2023 sampling event. Based on review of potentiometric surface mapping (**Figure 3**), the locations of MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR are hydraulically downgradient from Pond D.
- Monitoring wells GW-01R, GW-02R, GW-04A, GW-06R, GW-07R, and GW-08 (**Figure 2**) were previously sampled in May 2022 for total calcium concentrations in support of an ASD evaluation. The highest total calcium concentrations from the May 2022 event (**Table 2**) were detected in upgradient monitoring wells GW-04A (1,290,000 µg/L) and GW-06R (491,000 µg/L), suggesting that a potential source of calcium upgradient from the Unit may exist.

2.3 Chloride at MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR

The chloride SSIs identified at MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR are the result of a potential source upgradient from the Unit. The following evidence supports this determination:

- Chloride was detected at concentrations greater than the background threshold value of 33.3 mg/L in MW-FGD-17 (110 mg/L), MW-FGD-18 (1,410 mg/L), MW-FGD-19D (645 mg/L), and MW-FGD-20AR (563 mg/L) during the March 2023 sampling event. Based on review of potentiometric surface mapping (**Figure 3**), the locations of MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR are hydraulically downgradient from Pond D.
- Monitoring wells GW-01R, GW-02R, GW-04A, GW-06R, GW-07R, and GW-08 (**Figure 2**) were previously sampled in May 2022 for chloride concentrations in support of an ASD evaluation. The highest chloride concentration from the May 2022 event (**Table 2**) was detected in upgradient monitoring well GW-04A (2,820 µg/L), suggesting that a potential source of chloride upgradient from the Unit may exist.

2.4 pH at MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR

The pH SSIs identified at MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR are the result of a potential source upgradient from the Unit. The following evidence supports this:

- The pH levels were detected at levels greater than the background threshold range for pH of 4.67 to 5.82 at MW-FGD-17 (6.46), MW-FGD-18 (6.72), MW-FGD-19D (6.79), and MW-FGD-20AR (6.53) during the March 2023 sampling event. Based on review of potentiometric surface mapping (**Figure 3**), the locations of MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR are hydraulically downgradient from Pond D.

- Monitoring wells GW-01R, GW-02R, GW-04A, GW-06R, GW-07R, and GW-08 (**Figure 2**) were previously analyzed in May 2022 for pH levels in support of an ASD evaluation. The pH level at GW-04A (6.36) was above the background threshold value from the May 2022 event (**Table 2**), suggesting that a potential source of higher pH levels may be upgradient from the Unit.

2.5 Sulfate at MW-FGD-20AR

The sulfate SSI identified at MW-FGD-20AR is the result of a potential source upgradient from the Unit. The following evidence supports this determination:

- Sulfate was detected at concentrations greater than the background threshold value of 89.2 mg/L at MW-FGD-20AR (160 mg/L) during the March 2023 sampling event. Based on review of potentiometric surface mapping (**Figure 3**), the location of MW-FGD-20AR is hydraulically downgradient from Pond D.
- Monitoring wells GW-01R, GW-02R, GW-04A, GW-06R, GW-07R, and GW-08 (**Figure 2**) were previously sampled in May 2022 for sulfate concentrations in support of an ASD evaluation. The highest sulfate concentration from the May 2022 event (**Table 2**) was detected in upgradient monitoring well GW-04A (304 mg/L), suggesting that a potential source of sulfate upgradient from the Unit may exist.

2.6 Total Dissolved Solids MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR

The TDS SSIs identified at MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR are the result of a potential source upgradient from the Unit. The following evidence supports this determination:

- TDS was detected at concentrations greater than the background threshold value of 329 mg/L in MW-FGD-17 (896 mg/L), MW-FGD-18 (2,560 mg/L), MW-FGD-19D (1,060 mg/L), and MW-FGD-20AR (1,280 mg/L) during the March 2023 sampling event. Based on review of potentiometric surface mapping (**Figure 3**), the locations of MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR are hydraulically downgradient from Pond D.
- Monitoring wells GW-01R, GW-02R, GW-04A, GW-06R, GW-07R, and GW-08 (**Figure 2**) were previously sampled in May 2022 for TDS in support of an ASD evaluation. The highest TDS concentration from the May 2022 event (**Table 2**) was detected in upgradient monitoring well GW-04A (5,130 mg/L), suggesting that a potential source of TDS upgradient from the Unit may exist.

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 January 2023 and is anticipated to conclude in October 2023.

3.1 Evaluation of Background Monitoring Wells

The Unit is located amid solids settling ponds A, B, D, and E as depicted on **Figure 2**. Based on groundwater elevation measurements in this area, one or more of these ponds may act as a groundwater recharge area, generating radial groundwater flow away from the ponds. While not specifically downgradient of the Unit, background monitoring wells MW-FGD-16 and MW-FGD-21 are located hydraulically downgradient of Pond D.

It is suspected that surface water from Pond D may be influencing groundwater for both MW-FGD-16 and MW-FGD-21 and therefore these wells may not accurately represent the quality of background groundwater per the CCR Rule for the Unit. To evaluate this, monitoring wells MW-FGD-23 and MW-FGD-24 were installed in January 2023 along the western boundary of the Unit, between the Unit and Pond D, to monitor groundwater quality in this area. The newly installed monitoring wells are currently gauged for water levels monthly to evaluate groundwater flow of the western side of the Unit. The locations of the new monitoring wells are depicted on **Figure 2**.

3.2 Evaluation of Downgradient Monitoring Wells

Downgradient monitoring wells MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR are located along the northern and eastern boundaries of the Unit. To monitor groundwater quality at the southern boundary of the Unit, monitoring well MW-FGD-22 was installed in January 2023. The newly installed monitoring well is currently gauged for water levels monthly to evaluate groundwater flow on the downgradient portion of the Unit. The location of the new monitoring well is depicted on **Figure 2**.

The two new background monitoring wells have been sampled 8 times (January 2023 to August 2023) for background data collection in accordance with the CCR Rule in the circumstance that these monitoring wells may be used for compliance in the groundwater monitoring network. The data is

currently being evaluated by TRC however, based on preliminary review, the proposed monitoring well network may include:

- Background monitoring wells - MW-FGD-23 and MW-FGD-24.
  - Remove existing CCR network wells MWFGD-16 and MW-FGD-21 as they do not appear to provide representative background groundwater quality per CCR Rule §257.91(a)(1)(ii).
- Downgradient monitoring wells – MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR.
  - Remove MW-FGD-17 from the existing CCR well network as this well does not appear to monitor groundwater passing beneath the Unit.

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 SSIs at wells MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR were not due to a release from the Unit to the subsurface, but is most likely due to:

- A potential source located upgradient from the Unit; and/or,
- 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

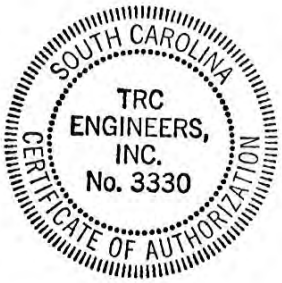
I hereby certify that the alternative source demonstration presented within this document for the DESC Williams New FGD Pond Unit has been prepared to meet the requirements of Title 40 CFR §257.94(e)(2) of the Federal CCR Rule. This document is accurate and has been prepared in accordance with good engineering 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 29, 2023



(SEAL)

Section 6
References

CEC 2021a. Closure Plan, Williams Station New FGD Pond, Goose Creek, South Carolina: Civil & Environmental Consultants, Inc.

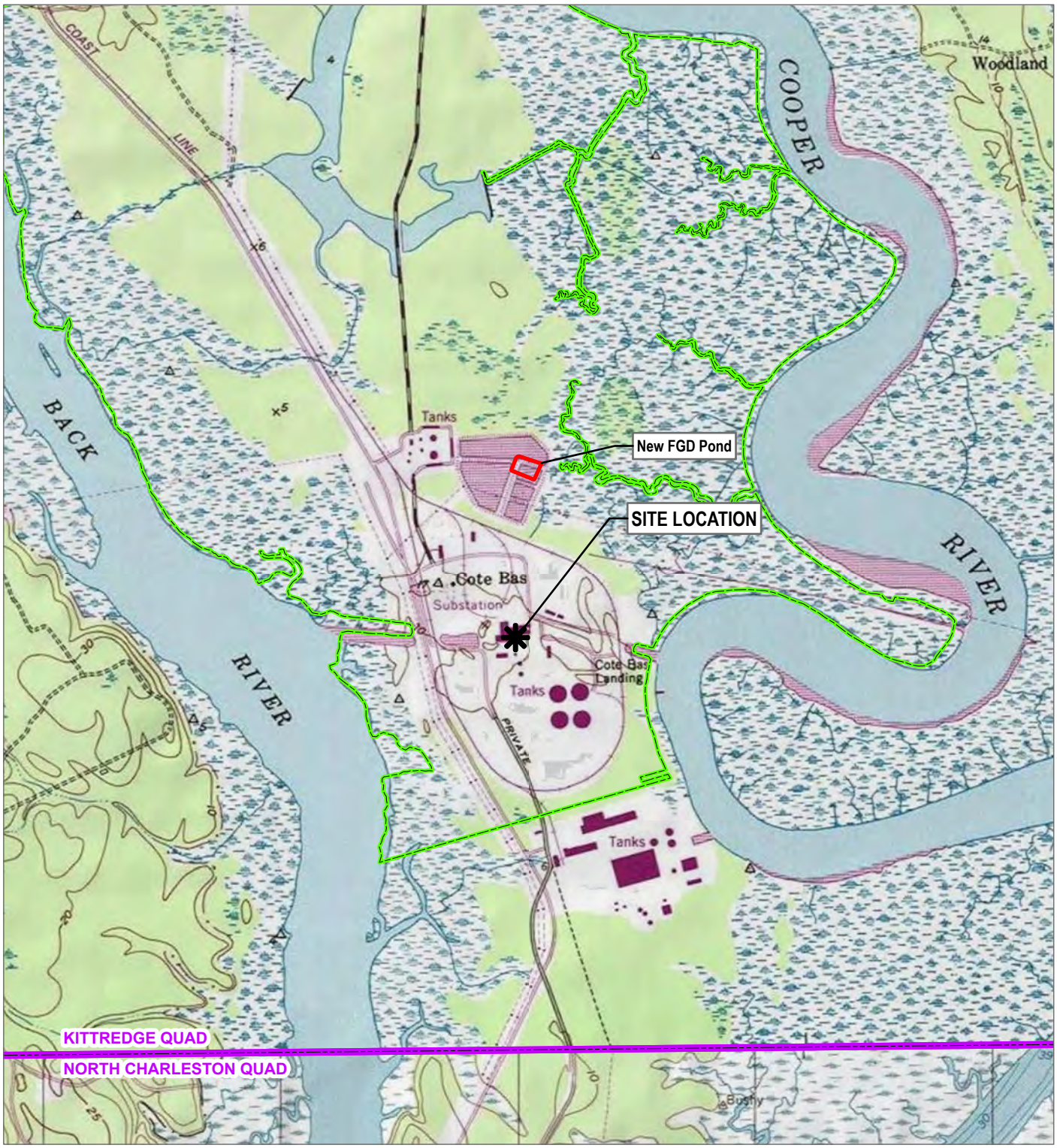
CEC 2021b. Statistical Analysis Plan Certification, Williams Station New FGD Pond, Berkeley County, SC. Civil & Environmental Consultants, Inc.

Nautilus 2016. Groundwater Sampling and Analysis Plan, Williams Station Landfill. Berkeley County, SC: Nautilus Geologic Consulting, PLLC.

Nautilus 2021. Alternate Source Demonstration Report, Williams Station Class Three Landfill. Berkeley County, SC: Nautilus Geologic Consulting, PLLC.

U.S. Geological Survey (USGS) Professional Paper: 1410-E, Hydrology of the Southeastern Coastal Plain Aquifer System in South Carolina and Parts of Georgia and North Carolina, 1996.

Figures



LEGEND

- SITE LOCATION
- FGD POND BOUNDARY
- USGS 24K QUAD BOUNDARY
- PROPERTY BOUNDARY

BASE MAP: USGS TOPOGRAPHIC MAP SERVICE
DATA SOURCES: TRC

N

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

PROJECT: DOMINION ENERGY SOUTH CAROLINA
WILLIAMS STATION
2242 BUSHY PARK ROAD
GOOSE CREEK, SOUTH CAROLINA 29445

TITLE: SITE LOCATION MAP

DRAWN BY:	L. LILL	PROJ. NO.:	416559.0006.0000
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

COORDINATE SYSTEM: NAD 1983 STATEPLANE SOUTH CAROLINA FIPS 3900 FEET INTL MAP ROTATION: 0
-- SAVED BY: LLILL ON 9/7/2023 15:56:23 PM FILE PATH: T:\1-PROJECTS\DOMINION\SOUTH CAROLINA\6 WILLIAMS SC\WILLIAMS STATION\2-APRX\2023 FIGURES\2023_FIGURES.APRX LAYOUT NAME: FIG01 WMS CCR SITE1 OC

LEGEND

- CCR BACKGROUND MONITORING WELL
- CCR DOWNGRADIENT MONITORING WELL
- NPDES MONITORING WELL
- NEW MONITORING WELL INSTALLATION LOCATION
- NEW FGD POND BOUNDARY
- PROPERTY BOUNDARY

NOTES:

1. AERIAL IMAGE FROM ESRI WORLD IMAGERY DATED OCTOBER, 2022.

N

1:2,400
1" = 200'

0 100 200
FEET

PROJECT:
DESC WILLIAMS STATION
NEW FGD POND
GOOSE CREEK, SOUTH CAROLINA

TITLE:
CCR RULE COMPLIANCE
MONITORING WELL NETWORK

DRAWN BY:	L. LILL	PROJ. NO.:	416559.0006.0000
CHECKED BY:	J. YONTS		**FIGURE 2**
APPROVED BY:	R. MAYER		
DATE:	SEPTEMBER 2023		

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

FILE: 2023_Figures.aprx

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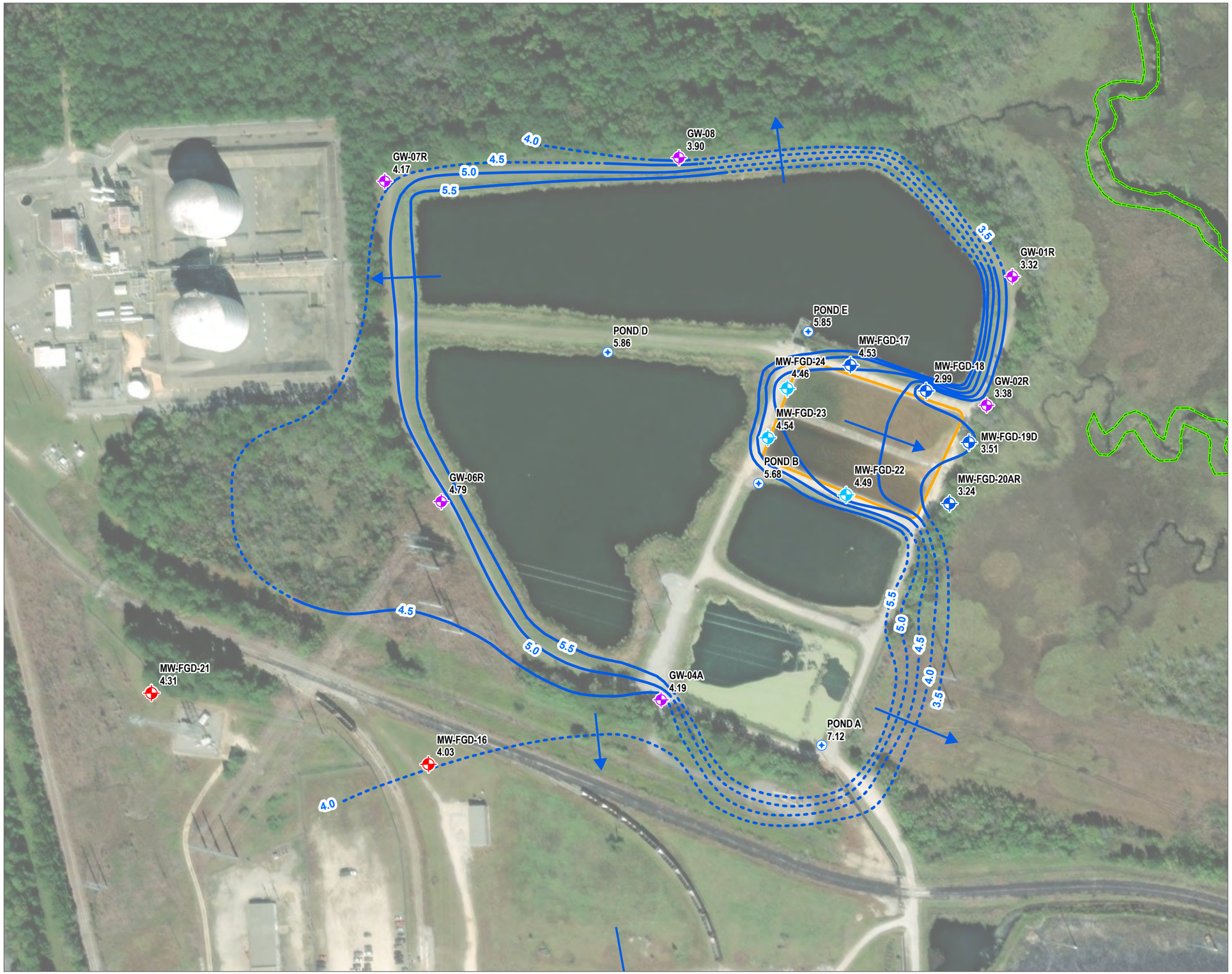

LEGEND

- CCR BACKGROUND MONITORING WELL
- CCR DOWNGRADIENT MONITORING WELL
- NEW MONITORING WELL INSTALLATION LOCATION
- NPDES MONITORING WELL
- STAFF GAUGE
- NEW FGD POND BOUNDARY
- PROPERTY BOUNDARY
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- WATER TABLE ELEVATION IN FEET ABOVE MEAN SEA LEVEL (0.5' CONTOUR INTERVALS) - DASHED WHERE INFERRED
- 4.31 WATER ELEVATION (FT. MSL)

NOTES:

1. AERIAL IMAGE FROM ESRI WORLD IMAGERY DATED OCTOBER, 2022.

1:2,400
1" = 200'
0 100 200 FEET

PROJECT:
DESC WILLIAMS STATION
NEW FGD POND
GOOSE CREEK, SOUTH CAROLINA

TITLE:
GROUNDWATER POTENTIOMETRIC SURFACE MAP - MARCH 20, 2023

DRAWN BY:	L. LILL	PROJ. NO.:	416559.0006.0000
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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Tables

Table 1
Summary of First Semiannual 2023 Detection Monitoring Program Sampling Event Data
Dominion Energy South Carolina - Williams Station New FGD Pond
Goose Creek, Berkeley County, South Carolina

			Background Wells								Downgradient Wells							
		Sample ID:	MW-FGD-16				MW-FGD-21				MW-FGD-17				MW-FGD-17 Duplicate			
		Sample Date:	03/21/2023				03/21/2023				03/20/2023				03/20/2023			
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	66.7	**37.4**		4.00	15.0	**20.0**		4.00	15.0	**146**		4.00	15.0	**145**		4.00	15.0
Calcium	µg/L	41,700	**15,200**		30.0	100	**45,600**		300	1000	**167,000**		300	1000	**151,000**		300	1000
Chloride	mg/L	33.3	**28.4**		0.335	1.00	**3.27**		0.0670	0.200	**110**		1.68	5.00	**110**		1.68	5.00
Fluoride	mg/L	0.646	**0.193**		0.0330	0.100	0.0330	U	0.0330	0.100	**0.526**		0.0330	0.100	**0.453**		0.0330	0.100
pH	SU	4.67 - 5.82	5.09		0.1	0.1	5.82		0.1	0.1	6.46		0.1	0.1	6.46		0.1	0.1
Sulfate	mg/L	89.2	**57.4**		0.665	2.00	**85.0**		1.33	4.00	**48.6**		3.33	10.0	**47.6**		3.33	10.0
Total Dissolved Solids	mg/L	329	**184**		2.38	10.0	**238**		2.38	10.0	**896**		4.76	20.0	**902**		4.76	20.0
Field Parameters																		
Conductivity	µS/cm	--	300.96		0.1	0.1	439.23		0.1	0.1	1,481.0		0.1	0.1	1,481.0		0.1	0.1
Dissolved Oxygen	mg/L	--	1.64		0.01	0.01	0.69		0.01	0.01	0.15		0.01	0.01	0.15		0.01	0.01
Temperature	C	--	18.94		0.01	0.01	18.87		0.01	0.01	18.14		0.01	0.01	18.14		0.01	0.01
Turbidity	NTU	--	1.84		0.1	0.1	21.9		0.1	0.1	2.39		0.1	0.1	2.39		0.1	0.1
Oxidation Reduction Potential	millivolts	--	153.1		0.1	0.1	-1.8		0.1	0.1	-18.0		0.1	0.1	-18.0		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

Qualifiers (Qual)

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 - Williams Station New FGD Pond
Goose Creek, Berkeley County, South Carolina

			Downgradient Wells											
		Sample ID:	MW-FGD-18				MW-FGD-19D				MW-FGD-20AR			
		Sample Date:	03/20/2023				03/20/2023				03/20/2023			
Parameter Name	**Units**	**Background Threshold Values**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**	**Result**	**Qual**	**MDL**	**QL**
CCR Appendix III														
Boron	µg/L	66.7	**3,620**		200	750	**2,080**		200	750	**3,410**		200	750
Calcium	µg/L	41,700	**236,000**		1,500	5,000	**134,000**		1,500	5,000	**280,000**		1,500	5,000
Chloride	mg/L	33.3	**1,410**		8.38	25.0	**645**		8.38	25.0	**563**		13.4	40.0
Fluoride	mg/L	0.646	**0.611**		0.0330	0.100	**0.453**		0.0330	0.100	**0.0906**	J	0.0330	0.100
pH	SU	4.67 - 5.82	6.72		0.1	0.1	6.79		0.1	0.1	6.53		0.1	0.10
Sulfate	mg/L	89.2	**60.2**		16.6	50.0	**38.1**		0.665	2.00	**160**		26.6	80.0
Total Dissolved Solids	mg/L	329	**2,560**		23.80	100	**1,060**		23.8	100	**1,280**		23.8	100
Field Parameters														
Conductivity	µS/cm	--	5,448.9		0.1	0.1	2,646.1		0.1	0.1	2,802.5		0.1	0.1
Dissolved Oxygen	mg/L	--	0.14		0.01	0.01	0.10		0.01	0.01	0.23		0.01	0.01
Temperature	C	--	19.79		0.01	0.01	21.97		0.01	0.01	18.92		0.01	0.01
Turbidity	NTU	--	1.82		0.1	0.1	20.2		0.1	0.1	4.91		0.1	0.1
Oxidation Reduction Potential	millivolts	--	-109.5		0.1	0.1	-86.1		0.1	0.1	-20.2		0.1	0.1

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

Qualifiers (Qual)
J = Estimated results

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

Table 2 - Summary of May 2022 Sampling Event Data
Dominion Energy South Carolina - Williams Station New FGD Pond
Goose Creek, Berkeley County, South Carolina

	Sample ID:	GW-01R				GW-02R				GW-04A				GW-06R				GW-07R				GW-08			
	Sample Date:	05/25/2022				05/25/2022				05/25/2022				05/25/2022				05/25/2022				05/25/2022			
Parameter Name	**Units**	**Result**	**Qual**	**MDL**	**RL**	**Result**	**Qual**	**MDL**	**RL**	**Result**	**Qual**	**MDL**	**RL**	**Result**	**Qual**	**MDL**	**RL**	**Result**	**Qual**	**MDL**	**RL**	**Result**	**Qual**	**MDL**	**RL**
CCR Appendix III																									
Boron	µg/L	11,900		400	1500	9,130		400	1500	20,100		800	3000	6,510		200	750	3,330		200	750	7,040		200	750
Calcium	µg/L	685,000		600	2000	444,000		600	2000	1,290,000		1500	5000	491,000		600	2000	325,000		600	2000	307,000		600	2000
Chloride	mg/L	1,800		33.5	100	1,510		33.5	100	2,820		33.5	100	931		33.5	100	596		6.70	20.0	710		6.70	20.0
pH	SU	6.48		0.01	0.01	3.39		0.01	0.01	6.36		0.01	0.01	3.44		0.01	0.01	3.56		0.01	0.01	6.08		0.01	0.01
Sulfate	mg/L	162		13.3	40.0	181		13.3	40.0	304		13.3	40.0	123		13.3	40.0	81.4		13.3	40.0	152		13.3	40.0
Total Dissolved Solids	mg/L	3,500		3.40	14.3	3,140		3.40	14.3	5,130		3.40	14.3	2,060		3.40	14.3	1,330		3.40	14.3	1,350		3.40	14.3

Notes:
MDL = Method Detection Limit
RL = Reporting Limit
mg/L = Milligram per liter
µg/L = Microgram per liter

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:**	Williams Generating Station
DATE:	03/20/2023	**PROJECT NUMBER:**	416559.0006.000
SAMPLER(S) NAME(S):	B. Medlin, A. Misiunas, R. Culp		

Well ID	Well Type	Time (hhmm)	Depth to GW (btoc,ft)	Depth to Bottom (btoc,ft)	Notes/Remarks
WMS-GW-01R	2" PVC	1530	10.65	NM	
WMS-GW-02R	2" PVC	1432	11.33	NM	
WMS-GW-04A	2" PVC	1506	10.39	NM	
WMS-GW-06R	2" PVC	1517	10.29	NM	
WMS-GW-07R	2" PVC	1523	11.35	NM	
WMS-GW-08	2" PVC	1526	11.30	NM	
WMS-GW-09	2" PVC	1716	6.31	NM	
WMS-MW-FGD-16	2" PVC	1618	8.67	NM	
WMS-MW-FGD-17	2" PVC	1419	7.45	NM	
WMS-MW-FGD-18	2" PVC	1428	8.65	NM	
WMS-MW-FGD-19D	2" PVC	1356	9.05	NM	
WMS-MW-FGD-20AR	2" PVC	1438	6.15	NM	
WMS-MW-FGD-21	2" PVC	1724	9.49	NM	
see comments	2" PVC	1446	7.79	NM	MW-FGD-22
see comments	2" PVC	1453	8.05	NM	MW-FGD-23
see comments	2" PVC	1457	8.19	NM	MW-FGD-24

Notes:			
Field Team Leader Signature:	Jason A. Yonts Digitally signed by Jason A. Yonts Date: 2023.03.29 11:03:36 -04'00'	**Signature Date:**	03/29/2023

Clear All Values | Print | Submit

TRC

WATER SAMPLE LOG

PROJECT NAME:	Williams Station - CCR 2023Q1	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0006.0000	BY: AGM	DATE: 3.21.23	BY: JMB	DATE: 3/27/23

SAMPLE ID: MW-FGD-16 | WELL DIAMETER: ☑ 2" ☐ 4" ☐ 6" ☐ OTHER

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

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

PURGING	TIME: 0927	DATE: 3.21.23	SAMPLE	TIME: 1005	DATE: 3-21.23

PURGE METHOD: ☑ PUMP PERISTALTIC PUMP ☐ BAILER

DEPTH TO WATER: 8.68 T/ PVC

DEPTH TO BOTTOM: 18.39 T/ PVC

WELL VOLUME: 1.5 ☐ LITERS ☑ GALLONS

VOLUME REMOVED: 1.2 ☐ LITERS ☑ GALLONS

COLOR: clear ODOR: none

TURBIDITY ☐ NONE ☒ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

PH: 5.09 SU CONDUCTIVITY: 300-96 umhos/cm

ORP: 153.1 mV DO: 1.64 mg/L

TURBIDITY: 1.84 NTU

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 18.94 °C OTHER:

COLOR: clear ODOR: none

FILTRATE (0.45 um) ☐ YES ☑ NO

FILTRATE COLOR: FILTRATE ODOR:

QC SAMPLE: ☐ MS/MSD ☐ DU-

POST TURBIDITY: NTU TIME: DTW: 8.78

COMMENTS: FBLK-WMS-FGD-23102 @1010

TIME	PURGE RATE (GPM or ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
0930	135	5.22	405.00	119.7	3.14	16.3	14.48	8.72	INITIAL
0935		5.15	339.17	114.0	2.12	7.52	18.05	8.74	
0940		5.13	336.87	118.0	2.05	5.98	18.14		
0945		5.10	318.41	126.8	1.86	2.64	18.44	8.76	
0950		5.14	325.38	133.4	1.86	3.81	18.67	8.78	
0955		5.09	306.11	141.4	1.72	4.43	18.81		
1000		5.10	303.61	147.1	1.60	2.21	18.85		
1005		5.09	300.96	153.1	1.64	1.84	18.94		1.2

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:

WATER SAMPLE LOG

PROJECT NAME:	Williams Station - CCR 2023Q1	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0006.0000	BY: RPC	DATE: 03/20	BY: JMB	DATE: 3/27/23

SAMPLE ID: MW-FGD-17 | WELL DIAMETER: ☑ 2" ☐ 4" ☐ 6" ☐ OTHER

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

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

PURGING	TIME: 1425	DATE: 03/20	SAMPLE	TIME: 1456	DATE: 03/20

PURGE METHOD: ☑ PUMP PERISTALTIC PUMP ☐ BAILER

DEPTH TO WATER: 7.45 T/ PVC

DEPTH TO BOTTOM: 18.50 T/ PVC

WELL VOLUME: 1.77 ☐ LITERS ☑ GALLONS

VOLUME REMOVED: 0.85 ☐ LITERS ☑ GALLONS RC

COLOR: Clear ODOR: ~~None~~ Sulfur

TURBIDITY ☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

PH: 6.46 SU CONDUCTIVITY: 1481.0 umhos/cm

ORP: -18.0 mV DO: 0.15 mg/L

TURBIDITY: 2.39 NTU

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 18.14 °C OTHER: —

COLOR: Clear ODOR: ~~None~~ RC Slight Sulfur

FILTRATE (0.45 um) ☐ YES ☑ NO

FILTRATE COLOR: — FILTRATE ODOR: —

QC SAMPLE: ☐ MS/MSD ☒ DU- WMS-FGD-28101

POST TURBIDITY: 2.37 NTU TIME: 1534 DTW: 7.85

COMMENTS:

TIME	PURGE RATE (GPM or ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1430	80	6.40	1463.1	56.0	0.65	2.98	21.28	7.75	INITIAL
1435	80	6.44	1441.3	20.2	0.14	2.65	18.52	7.80	
1440	80	6.45	1439.8 1443 RC	5.3	0.15	2.26	18.04	7.85	
1445	80	6.46	1461.5	-5.2	0.16	2.45	18.07	7.85	
1450	80	6.46	1472.0	-11.9	0.16	3.18	18.08	7.85	
1453	80	6.46	1476.6	-14.6	0.16	3.17	18.16	7.85	
1456	80	6.46	1481.0	-18.0	0.15	2.39	18.14	7.85	

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:	Williams Station - CCR 2023Q1	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0006.0000	BY: AGM	DATE: 3-20-23	BY: JMB	DATE: 3/27/23

SAMPLE ID: MW-FGD-18 WELL DIAMETER: ☑ 2" ☐ 4" ☐ 6" ☐ OTHER

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

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

PURGING	TIME: 1537	DATE: 3-20-23	SAMPLE	TIME: 1620	DATE: 3-20-23

PURGE METHOD: ☑ PUMP PERISTALTIC PUMP ☐ BAILER

DEPTH TO WATER: 7.41 T/ PVC

DEPTH TO BOTTOM: 18.30 T/ PVC

WELL VOLUME: 1.7 ☐ LITERS ☑ GALLONS

VOLUME REMOVED: 0.6 ☐ LITERS ☑ GALLONS

COLOR: clear ODOR: none

TURBIDITY ☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

PH: 6.72 SU CONDUCTIVITY: 5448.9 umhos/cm

ORP: -109.5 mV DO: 0.14 mg/L

TURBIDITY: 1.82 NTU

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 19.79 °C OTHER:

COLOR: clear ODOR: none

FILTRATE (0.45 um) ☐ YES ☑ NO

FILTRATE COLOR: FILTRATE ODOR:

QC SAMPLE: ☐ MS/MSD ☐ DU-

POST TURBIDITY: 2.71 NTU TIME: 1642 DTW: 7.89

COMMENTS:

TIME	PURGE RATE (GPM or ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1540	75	6.66	5158.0	-90.0	0.58	5.01	21.29	7.58	INITIAL
1545		6.73	5202.4	-104.7	0.18	1.27	18.99	7.66	
1550		6.74	5212.1	-107.3	0.17	5.33	19.08	7.78	
1555		6.74	5273.1	-108.3	0.17	0.94	19.05	7.89	
1600		6.73	5339.1	-109.2	0.15	2.20	19.24		
1605		6.73	5367.8	-109.0	0.15	3.12	19.32		
1610		6.72	5448.9	-109.5	0.14	1.82	19.79		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
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:	Williams Station - CCR 2023Q1	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0006.0000	BY: AGM	DATE: 3.2023	BY: JMB	DATE: 3/27/23

SAMPLE ID: MW-FGD-19D WELL DIAMETER: ☑ 2" ☐ 4" ☐ 6" ☐ OTHER

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

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

PURGING	TIME: 1422	DATE: 3-2023	SAMPLE	TIME: 1500	DATE: 3-20-23

PURGE METHOD: ☑ PUMP PERISTALTIC PUMP ☐ BAILER

DEPTH TO WATER: 9.13 T/ PVC

DEPTH TO BOTTOM: 28.20 T/ PVC

WELL VOLUME: 3 ☐ LITERS ☑ GALLONS

VOLUME REMOVED: 1.2 ☐ LITERS ☑ GALLONS

COLOR: light brown ODOR: none

TURBIDITY ☐ NONE ☐ SLIGHT ☐ MODERATE ☒ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

PH: 6.79 SU CONDUCTIVITY: 2646.1 umhos/cm

ORP: -86.1 mV DO: 0.10 mg/L

TURBIDITY: 20.2 NTU

☐ NONE ☒ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 21.97 °C OTHER:

COLOR: light brown/clear ODOR: none

FILTRATE (0.45 um) ☐ YES ☑ NO

FILTRATE COLOR: FILTRATE ODOR:

QC SAMPLE: ☒ MS/MSD ☐ DU-

POST TURBIDITY: 14.1 NTU TIME: 1530 DTW: 9.24

COMMENTS: FBLK-23101 collected @ 1515

TIME	PURGE RATE (GPM or ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1425	125	6.46	2441.8	79.5	0.43	80.8	25.38	9.22	INITIAL
1430		6.71	2616.1	15.3	0.15	44.1	21.51		
1435		6.72	2624.4	-12.5	0.13	35.4	21.66	9.24	
1440		6.71	2631.4	-28.5	0.12	24.4	21.44		
1445		6.71	2639.9	-41.5	0.12	24.6	21.62		
1450		6.75	2631.3	-68.5	0.10	20.1	21.94		
1455		6.76	2629.6	-75.6	0.10	16.8	21.79		
1500		6.79	2646.1	-86.1	0.10	20.2	21.97		1.2

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:	Williams Station - CCR 2023Q1	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0006.0000	BY: RPC	DATE: 03/20	BY: JMB	DATE: 3/27/23

SAMPLE ID: MW-FGD-20AR | WELL DIAMETER: ☑ 2" ☐ 4" ☐ 6" ☐ OTHER

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

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

PURGING	TIME: 1600	DATE: 03/20	SAMPLE	TIME: 1631	DATE: 03/20

PURGE METHOD: ☑ PUMP PERISTALTIC PUMP ☐ BAILER

DEPTH TO WATER: 6.18 T/ PVC

DEPTH TO BOTTOM: 22.70 T/ PVC

WELL VOLUME: 2.64 ☐ LITERS ☑ GALLONS

VOLUME REMOVED: 0.90 ☐ LITERS ☑ GALLONS

COLOR: clear ODOR: None

TURBIDITY ☐ NONE ☒ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

PH: 6.53 SU CONDUCTIVITY: 28025 umhos/cm

ORP: -20.2 mV DO: 0.23 mg/L

TURBIDITY: 4.91 NTU

☐ NONE ☒ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 18.92 °C OTHER: —

COLOR: clear ODOR: None

FILTRATE (0.45 um) ☐ YES ☑ NO

FILTRATE COLOR: — FILTRATE ODOR: —

QC SAMPLE: ☐ MS/MSD ☑ DU-

POST TURBIDITY: 3.20 NTU TIME: 1653 DTW: 6.25

COMMENTS:

TIME	PURGE RATE (GPM or ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1605	90	6.55	2590.5	-1.6	2.96	7.12	20.42	6.25	INITIAL
1610	90	6.51	2730.8	-10.9	0.49	5.86	19.08	6.25	
1615	90	6.52	2770.2	-16.2	0.36	6.26	19.70	6.25	
1620	90	6.53	2719.6	-16.4	0.26	6.42	18.52	6.25	
1625	90	6.52	2753.3	-17.8	0.25	4.16	18.52	6.25	
1628	90	6.53	2766.6	-18.6	0.23	4.55	18.43	6.25	
1631	90	6.53	2802.5	-20.2	0.23	4.91	18.92	6.25	0.90

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~~

WATER SAMPLE LOG

PROJECT NAME:	Williams Station - CCR 2023Q1	PREPARED		CHECKED	
PROJECT NUMBER:	416559.0006.0000	BY: BJM	DATE: 3.21.23	BY: JMB	DATE: 3/27/23

SAMPLE ID: MW-FGD-21 | WELL DIAMETER: ☑ 2" ☐ 4" ☐ 6" ☐ OTHER

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

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

PURGING	TIME: 0955	DATE: 3.21.23	SAMPLE	TIME: 1110	DATE: 3.21.23

PURGE METHOD: ☑ PUMP PERISTALTIC PUMP ☐ BAILER

DEPTH TO WATER: 9.49 T/ PVC

DEPTH TO BOTTOM: 20.92 T/ PVC

WELL VOLUME: 1.8 ☐ LITERS ☑ GALLONS

VOLUME REMOVED: 1.5 ☐ LITERS ☑ GALLONS

COLOR: clear w/ orange sed. ODOR: none

TURBIDITY: ☐ NONE ☑ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☑ OTHER

PH: 5.82 SU CONDUCTIVITY: 439.23 umhos/cm

ORP: -1.8 mV DO: 0.69 mg/L

TURBIDITY: 21.9 NTU

☐ NONE ☑ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 18.87 °C OTHER:

COLOR: clear w/ fine sed. ODOR: none

FILTRATE (0.45 um) ☐ YES ☑ NO

FILTRATE COLOR: FILTRATE ODOR:

QC SAMPLE: ☐ MS/MSD ☐ DU- FB

POST TURBIDITY: 16.6 NTU TIME: 1135 DTW: 9.64

COMMENTS:

TIME	PURGE RATE (GPM or ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1000	80	5.72	486.13	40.9	1.80	50.5	17.55	9.64	INITIAL
1005		5.74	451.21	30.3	1.45	40.2	18.07		
1010		5.79	448.65	20.7	1.29	30.6	18.51		
1015		5.80	443.77	15.3	1.11	47.9	18.69		
1020		5.81	441.78	12.4	1.09	45.6	18.82		
1025		5.81	441.22	7.7	0.99	35.3	18.89		
1030		5.82	441.10	6.7	0.93	37.1	18.91		
1100		5.83	440.15	-0.1	0.75	22.6	19.53		
1105		5.83	439.63	-1.1	0.71	25.2	19.23		
1110		5.82	439.23	-1.8	0.69	21.9	18.87		1.5

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: 3-21-23

~~REVISED 06/2011~~

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	Williams Station	MODEL: AQUA TROLL 400	SAMPLER: BM / AM / RC
PROJECT NO.:	416559.0006.0000	SERIAL #: 883546	DATE: 3.20.23

PH CALIBRATION CHECK

pH 7 (LOT #): 2216893 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	pH 4 / 10 (LOT #): ~ (EXP. DATE): ~ PRE-CAL. READING / STANDARD	CAL. RANGE	TIME
6.91 / 7.00	4.08 / 4.00	☐ WITHIN RANGE	1309
Post 7.00 / 7.00	4.00 to 4.00 AM	☒ WITHIN RANGE	1309
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): ~ (EXP. DATE): ~ PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
4.50 / 4.49	19.00	☐ WITHIN RANGE	1309
Post 4.49 / 4.49	20.11	☒ WITHIN RANGE	1309
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

ORP CALIBRATION CHECK

CAL. READING (LOT #): 21390144 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
219 / 228 mV	20.06	☐ WITHIN RANGE	1309
Post 228 / 228	20.24	☒ WITHIN RANGE	1309
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CALIBRATION READING mg/L	CAL. RANGE	TIME
Temp: 20°C Baro: 770mmHg Actual: 9.04 Calc: 9.2	☒ WITHIN RANGE	1309
	☐ 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
0.45 / 0	0 / 0	☒ WITHIN RANGE	1309
1.52 / 1	1.00 / 1	☒ WITHIN RANGE	
11.4 / 10	10.3 / 10	☒ WITHIN RANGE	
/	/	☐ 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	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

S/N 1837-3919

PROBLEMS ENCOUNTERED	CORRECTIVE ACTIONS
none	none

SIGNED 3.20.23 DATE

CHECKED BY Jacob Bradley 3/27/23 DATE

TRC

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	Williams Station	MODEL: AQUA TROLL 400	SAMPLER: (BM) / AM / RC
PROJECT NO.:	416559.0006.0000	SERIAL #: 851425	DATE: 3-20-23

PH CALIBRATION CHECK

pH 7 (LOT #): 2216893 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	pH 4 / 10 (LOT #): — (EXP. DATE): — PRE-CAL. READING / STANDARD	CAL. RANGE	TIME
6.85 / 7.00	4.09 / 4.00	☐ WITHIN RANGE	1309
Post 7.00 / 7.00	4.00 / 4.00	☒ WITHIN RANGE	1309
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): — (EXP. DATE): — PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
4.60 / 4.49	18.98	☐ WITHIN RANGE	1309
Post 4.49 / 4.49	21.86	☒ WITHIN RANGE	1309
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

ORP CALIBRATION CHECK

CAL. READING (LOT #): 2139044 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
204 / 228 mV	20.97	☐ WITHIN RANGE	1309
Post 228 / 228	21.45	☒ WITHIN RANGE	1309
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CALIBRATION READING mg/L	CAL. RANGE	TIME
Temp: 20°C Baro: 770 mmHg Actual: 9.0 mg/L calc: 9.2 mg/L	☒ WITHIN RANGE	1309
	☐ WITHIN RANGE	
	☐ 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
1.07 / 0	0 / 0	☒ WITHIN RANGE	1309
2.20 / 1	1.01 / 1	☒ WITHIN RANGE	
7.10 / 10	9.71 / 10	☒ WITHIN RANGE	
/	/	☐ 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	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

S/O LS11-4111

PROBLEMS ENCOUNTERED	CORRECTIVE ACTIONS
none	none

SIGNED 3-20-23 DATE

CHECKED BY Jacob Bradley 3/27/23 DATE

REVISED 06/2011

TRC

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	Williams Station	MODEL: AQUA TROLL 400	SAMPLER: BM / AM / RC
PROJECT NO.:	416559.0006.0000	SERIAL #: 909268	DATE: 03/21/23

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
6.91 / 7.00	4.27 / 4.00	☐ WITHIN RANGE	
/	9.97 / 10.00	☐ WITHIN RANGE	
7.06 / 7.00	4.00 / 4.00	☒ WITHIN RANGE	0839/0849
/	10.13 / 10.00	☒ WITHIN RANGE	0844

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): 22250153 (EXP. DATE): 11/2023 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
4343.1 / 4490	13.63	☐ WITHIN RANGE	
4471.9 / 4490	13.90	☒ WITHIN RANGE	0850
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

ORP CALIBRATION CHECK

CAL. READING (LOT #): 21390144 (EXP. DATE): 11/2023 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
218.2 / 228	14.46	☐ WITHIN RANGE	
228.0 / 228	14.22	☒ WITHIN RANGE	0859
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CALIBRATION READING mg/L	CAL. RANGE	TIME
Temp: 16.20	☐ WITHIN RANGE	
Baro: 774.11	☐ WITHIN RANGE	
Act: 9.98	☒ WITHIN RANGE	0857
Calc: 10.00	☐ 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	☒ WITHIN RANGE	0846
1.04 / 1.00	1.02 / 1.00	☒ WITHIN RANGE	0847
9.57 / 10.00	10.00 / 10.00	☒ WITHIN RANGE	0848
/	/	☐ 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] 03/21/23 DATE

CHECKED BY Jacob Bradley 3/27/23 DATE

REVISED 06/2011

TRC

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	Williams Station	MODEL: AQUA TROLL 400	SAMPLER: BM / AM / RC
PROJECT NO.:	416559.0006.0000	SERIAL #: 883546	DATE: 3.21.23

PH CALIBRATION CHECK

pH 7 (LOT #): 2216843 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	NC pH 4 / 10 (LOT #): 2225015 3 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	CAL. RANGE	TIME
6.93 / 7.00	4.04 / 4.00	☐ WITHIN RANGE	0838
Post 7.00 / 7.00	4.00 / 4.00	☒ WITHIN RANGE	0838
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): — (EXP. DATE): — PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
4.62 / 4.49	12.73	☐ WITHIN RANGE	0838
Post 4.49 / 4.49	13.09	☒ WITHIN RANGE	0838
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

ORP CALIBRATION CHECK

CAL. READING (LOT #): 21390144 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
237 / 228	13.19	☐ WITHIN RANGE	0940
Post 228 / 228	13.37	☒ WITHIN RANGE	0940
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CALIBRATION READING mg/L	CAL. RANGE	TIME
Temp: 13°C Baro: 775mmHg Actual: 10.63 mg/L calc. 10.7 mg/L	☒ WITHIN RANGE	0838
	☐ WITHIN RANGE	
	☐ 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 / 1.33	/	☒ WITHIN RANGE	0950
1.33 / 0	0.0 / 0	☒ WITHIN RANGE	
1.10 / 1	0.91 / 1	☒ WITHIN RANGE	
8.40 / 10	10.2 / 10	☒ 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	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

S/N 1511-4111

PROBLEMS ENCOUNTERED	CORRECTIVE ACTIONS
none	none

SIGNED _____ DATE 3.21.23

CHECKED BY Jacob Bradley DATE 3/27/23

REVISED 06/2011

TRC

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	Williams Station	MODEL: AQUA TROLL 400	SAMPLER: (BM) / AM / RC
PROJECT NO.:	416559.0006.0000	SERIAL #: 851425	DATE: 3.21.23

PH CALIBRATION CHECK

pH 7 (LOT #): 221693 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	A/C (pH 4) / 10 (LOT #): 22250153 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	CAL. RANGE	TIME
6.97 / 7.00	4.05 / 4.00	☐ WITHIN RANGE	0838
Post 7.00 / 7.00	4.00 / 4.02	☒ WITHIN RANGE	0838 Post
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): — (EXP. DATE): — PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
4.50 / 4.49	13.29	☐ WITHIN RANGE	0838
4.49 / 4.49	13.22	☒ WITHIN RANGE	0838
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

ORP CALIBRATION CHECK

CAL. READING (LOT #): 21390144 (EXP. DATE): 11/23 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
235 / 228	13.01	☐ WITHIN RANGE	0940
228 / 228	13.28	☒ WITHIN RANGE	0940
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CALIBRATION READING mg/L	CAL. RANGE	TIME
Temp: 13°C Baro. 775 mmHg Actual: 10.55 mg/L calc. 10.7 mg/L	☒ WITHIN RANGE	0838
	☐ WITHIN RANGE	
	☐ 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
0.14 / 0	0.0 / 0	☒ WITHIN RANGE	0950
1.90 / 1	0.99 / 1	☒ WITHIN RANGE	
14.54 / 10	10.10 / 10	☒ WITHIN RANGE	
/	/	☐ 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	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

S/N 1837-3919

PROBLEMS ENCOUNTERED	CORRECTIVE ACTIONS
none	none

SIGNED — DATE: 3.21.23

CHECKED BY: Jacob Bradley — DATE: 3/27/23

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

April 04, 2023

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

Re: CCR Groundwater Monitoring - Level 1 Package
Work Order: 615220

Dear Kelly Hicks:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on March 22, 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
Chain of Custody: 202303211
Enclosures

Table of Contents

Case Narrative

Receipt Narrative
for
Dominion Energy (50149867)
SDG: 615220

April 04, 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 22, 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
615220001	MW-FGD-16-2023Q1
615220002	MW-FGD-17-2023Q1
615220003	MW-FGD-18-2023Q1
615220004	MW-FGD-19D-2023Q1
615220005	MW-FGD-20AR-2023Q1
615220006	MW-FGD-21-2023Q1
615220007	FBLK-WMS-FGD-23101
615220008	FBLK-WMS-FGD-23102
615220009	DU-WMS-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

Meredith Boddiford
Project Manager

Chain of Custody and Supporting Documentation

Page: 1 of 1
Project # 416559.6.0.6.2
GEL Quote #:
COC Number (1): 202303211
PO Number: PO 50149867

GEL Laboratories LLC 615220

gel.com Chemistry | Radiochemistry | Radiobioassay | Specialty Analytics

Chain of Custody and Analytical Request

GEL Work Order Number: 228351 **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: Williams Station New FGD CCR 2023Q1 Fax #
Address: Goose Creek, South Carolina
Collected By: B. Medlin / A. Misiunas Send Results To: AReed@envstd.com

SDG: 615220

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-EPA 300.0	Total APP III Metals	NI	<-- Preservative Type (6)	Comments
MW-FGD-16-2023Q1	3.21.23	1005	N	N	GW	N		3	1	1	1			EPA 200.7 - B, Ca
MW-FGD-17-2023Q1	3.20.23	1456	N	N	GW	N		3	1	1	1			
MW-FGD-18-2023Q1	3.20.23	1610	N	N	GW	N		3	1	1	1			
~~MW-FGD-19-2023Q1~~			N	N	GW	N								
MW-FGD-19D-2023Q1 /MS/MSD	3.20.23	1500	N	N	GW	N		6	2	2	2			
MW-FGD-20AR-2023Q1	3.20.23	1631	N	N	GW	N		3	1	1	1			see attached work
MW-FGD-21-2023Q1	3.21.23	1110	N	N	GW	N		3	1	1	1			order for details
FBLK-WMS-FGD-23101	3.20.23	1515	FB	N	AQ	N		3	1	1	1			
FBLK-WMS-FGD-23102	3.21.23	1010	FB	N	AQ	N		3	1	1	1			
DU-WMS-FGD-23101	3.20.23	/	FD	N	GW	N		3	1	1	1			

Chain of Custody Signatures

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1	3.22.23	0735	1	3/22/23	735
2			2		
3			3		

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

Fax Results: [ ] Yes [X] No
Select Deliverable: [ ] C of A [ ] QC Summary [X] level 1 [ ] Level 2 [ ] Level 3 [ ] Level 4
Additional Remarks:
For Lab Receiving Use Only: *Custody Seal Intact?* [ ] Yes [ ] No ***Cooler Temp:*** ____ °C

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

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

1.) Chain of Custody Number = Client Determined

2.) QC Codes: **N** = Normal Sample, **TB** = Trip Blank, **FD** = Field Duplicate, **EB** = Equipment Blank, **MS** = Matrix Spike Sample, **MSD** = Matrix Spike Duplicate Sample, **G** = Grab, **C** = Composite

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

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

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

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

7.) **KNOWN OR POSSIBLE HAZARDS**

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

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

TSCA Regulated
PCB = Polychlorinated biphenyls

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

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

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

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM MB

Client: DMW	**SDG/AR/COC/Work Order:** 615220
Received By: MH	**Date Received:** 03.22.2023
Enter one tracking number per line below.	IR temperature gun#: IR231 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.**
Cooler 1 -	**Uncorrected Temp:** 2.9 **IR Correction Factor: +/-** 0 **Final Recorded Temp:** 3.0 **Within 0.0-6.0C? Y/N**
Cooler 2 -	**Uncorrected Temp:** 3.0 **IR Correction Factor: +/-** 0 **Final Recorded Temp:** 3.0 **Within 0.0-6.0C? Y/N**
Cooler 3 -	**Uncorrected Temp:** 3.9 **IR Correction Factor: +/-** 0 **Final Recorded Temp:** 4.0 **Within 0.0-6.0C? Y/N**
	Uncorrected Temp: **IR Correction Factor: +/-** **Final Recorded Temp:** **Within 0.0-6.0C? Y/N**
	Uncorrected Temp: **IR Correction Factor: +/-** **Final Recorded Temp:** **Within 0.0-6.0C? Y/N**
	Uncorrected Temp: **IR Correction Factor: +/-** **Final Recorded Temp:** **Within 0.0-6.0C? Y/N**

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?		X	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?		X	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 60 **CPM / mR/Hr** **Classified as: Rad 1 Rad 2 Rad 3**
D) Did the client designate samples are hazardous?		X	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		X	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?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	X			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
4	Samples requiring cold preservation were unpacked directly into cold storage?	X			Uncorrected Temp: Correction Factor: +/- Final Recorded Temp: Within 0.0-6.0C? Y/N NA Response = Samples are for radiochemistry testing only
5	Samples requiring chemical preservation at proper pH?	X			Sample ID's and Containers Affected: If Preservative added, Lot#:
6	Do any samples require Volatile Analysis?			X	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
7	Samples received within holding time?	X			ID's and tests affected:
8	Sample ID's on COC match ID's on bottles?	X			ID's and containers affected:
9	Date & time on COC match date & time on bottles?	X			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
10	Number of containers received match number indicated on COC?	X			Circle Applicable: No container count on COC Other (describe)
11	Are sample containers identifiable as GEL provided by use of GEL labels?	X			
12	COC form is properly signed in relinquished/received sections?	X			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

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

GL-CHL-SR-001A Rev 1

Laboratory Certifications

List of current GEL Certifications as of 04 April 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 #: 615220

Product: Determination of Metals by ICP-MS
Analytical Method: EPA 200.8 SC_NPDES
Analytical Procedure: GL-MA-E-014 REV# 35
Analytical Batch: 2402426

Preparation Method: EPA 200.2
Preparation Procedure: GL-MA-E-016 REV# 18
Preparation Batch: 2402425

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

GEL Sample ID#	Client Sample Identification
615220001	MW-FGD-16-2023Q1
615220002	MW-FGD-17-2023Q1
615220003	MW-FGD-18-2023Q1
615220004	MW-FGD-19D-2023Q1
615220005	MW-FGD-20AR-2023Q1
615220006	MW-FGD-21-2023Q1
615220007	FBLK-WMS-FGD-23101
615220008	FBLK-WMS-FGD-23102
615220009	DU-WMS-FGD-23101
1205353565	Method Blank (MB)**ICP-MS**
1205353566	Laboratory Control Sample (LCS)
1205353569	615220004(MW-FGD-19D-2023Q1L) Serial Dilution (SD)
1205353567	615220004(MW-FGD-19D-2023Q1D) Sample Duplicate (DUP)
1205353568	615220004(MW-FGD-19D-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. Samples 615220002 (MW-FGD-17-2023Q1), 615220003 (MW-FGD-18-2023Q1), 615220004 (MW-FGD-19D-2023Q1), 615220005 (MW-FGD-20AR-2023Q1), 615220006 (MW-FGD-21-2023Q1) and 615220009 (DU-WMS-FGD-23101) were diluted to ensure that the analyte concentrations were within the linear calibration range of the instrument.

Analyte	615220					
	002	**003**	**004**	**005**	**006**	**009**
Boron	1X	50X	50X	50X	1X	1X
Calcium	10X	50X	50X	50X	10X	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.

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: 615220 GEL Work Order: 615220

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

Sample Data Summary

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 615220 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 615220001 **BASIS:** As Received **DATE COLLECTED** 21-MAR-23

CLIENT ID: MW-FGD-16-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 22-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	37.4	ug/L		4.00	15.0	15.0	1	MS	PRB	03/28/23 13:29	230328-1	2402426
7440-70-2	Calcium	15200	ug/L		30.0	100	100	1	MS	PRB	03/28/23 13:29	230328-1	2402426

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2402426	2402425	EPA 200.2	50	mL	50	mL	03/23/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 615220 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 615220002 **BASIS:** As Received **DATE COLLECTED** 20-MAR-23

CLIENT ID: MW-FGD-17-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 22-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	146	ug/L		4.00	15.0	15.0	1	MS	PRB	03/28/23 15:35	230328-1	2402426
7440-70-2	Calcium	167000	ug/L		300	1000	1000	10	MS	PRB	03/28/23 13:31	230328-1	2402426

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2402426	2402425	EPA 200.2	50	mL	50	mL	03/23/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 615220 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 615220003 **BASIS:** As Received **DATE COLLECTED** 20-MAR-23

CLIENT ID: MW-FGD-18-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 22-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	3620	ug/L		200	750	750	50	MS	PRB	03/28/23 13:33	230328-1	2402426
7440-70-2	Calcium	236000	ug/L		1500	5000	5000	50	MS	PRB	03/28/23 13:33	230328-1	2402426

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2402426	2402425	EPA 200.2	50	mL	50	mL	03/23/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 615220 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 615220004 **BASIS:** As Received **DATE COLLECTED** 20-MAR-23

CLIENT ID: MW-FGD-19D-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 22-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	2080	ug/L		200	750	750	50	MS	PRB	03/28/23 13:35	230328-1	2402426
7440-70-2	Calcium	134000	ug/L		1500	5000	5000	50	MS	PRB	03/28/23 13:35	230328-1	2402426

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2402426	2402425	EPA 200.2	50	mL	50	mL	03/23/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 615220 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 615220005 **BASIS:** As Received **DATE COLLECTED** 20-MAR-23

CLIENT ID: MW-FGD-20AR-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 22-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	3410	ug/L		200	750	750	50	MS	PRB	03/28/23 13:46	230328-1	2402426
7440-70-2	Calcium	280000	ug/L		1500	5000	5000	50	MS	PRB	03/28/23 13:46	230328-1	2402426

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2402426	2402425	EPA 200.2	50	mL	50	mL	03/23/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 615220 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 615220006 **BASIS:** As Received **DATE COLLECTED** 21-MAR-23

CLIENT ID: MW-FGD-21-2023Q1 **LEVEL:** Low **DATE RECEIVED:** 22-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		4.00	15.0	15.0	1	MS	PRB	03/28/23 15:37	230328-1	2402426
7440-70-2	Calcium	45600	ug/L		300	1000	1000	10	MS	PRB	03/28/23 13:48	230328-1	2402426

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2402426	2402425	EPA 200.2	50	mL	50	mL	03/23/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 615220 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 615220007 **BASIS:** As Received **DATE COLLECTED** 20-MAR-23

CLIENT ID: FBLK-WMS-FGD-23101 **LEVEL:** Low **DATE RECEIVED:** 22-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	03/28/23 13:50	230328-1	2402426
7440-70-2	Calcium	30.0	ug/L	U	30.0	100	100	1	MS	PRB	03/28/23 13:50	230328-1	2402426

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2402426	2402425	EPA 200.2	50	mL	50	mL	03/23/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 615220 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 615220008 **BASIS:** As Received **DATE COLLECTED** 21-MAR-23

CLIENT ID: FBLK-WMS-FGD-23102 **LEVEL:** Low **DATE RECEIVED:** 22-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	03/28/23 13:52	230328-1	2402426
7440-70-2	Calcium	30.0	ug/L	U	30.0	100	100	1	MS	PRB	03/28/23 13:52	230328-1	2402426

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2402426	2402425	EPA 200.2	50	mL	50	mL	03/23/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 615220 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 615220009 **BASIS:** As Received **DATE COLLECTED** 20-MAR-23

CLIENT ID: DU-WMS-FGD-23101 **LEVEL:** Low **DATE RECEIVED:** 22-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	145	ug/L		4.00	15.0	15.0	1	MS	PRB	03/28/23 15:39	230328-1	2402426
7440-70-2	Calcium	151000	ug/L		300	1000	1000	10	MS	PRB	03/28/23 13:54	230328-1	2402426

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2402426	2402425	EPA 200.2	50	mL	50	mL	03/23/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

Quality Control Summary

METALS
-2a-
Initial and Continuing Calibration Verification

SDG No: 615220

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	101	ug/L	100	ug/L	101.5	90.0 - 110.0	MS	28-MAR-23 11:52	230328-1
	Calcium	4960	ug/L	5000	ug/L	99.2	90.0 - 110.0	MS	28-MAR-23 11:52	230328-1
CCV01										
	Boron	104	ug/L	100	ug/L	103.7	90.0 - 110.0	MS	28-MAR-23 12:02	230328-1
	Calcium	5070	ug/L	5000	ug/L	101.4	90.0 - 110.0	MS	28-MAR-23 12:02	230328-1
CCV02										
	Boron	101	ug/L	100	ug/L	101.3	90.0 - 110.0	MS	28-MAR-23 12:08	230328-1
	Calcium	5240	ug/L	5000	ug/L	104.7	90.0 - 110.0	MS	28-MAR-23 12:08	230328-1
CCV03										
	Boron	100	ug/L	100	ug/L	100.5	90.0 - 110.0	MS	28-MAR-23 13:21	230328-1
	Calcium	5090	ug/L	5000	ug/L	101.8	90.0 - 110.0	MS	28-MAR-23 13:21	230328-1
CCV04										
	Boron	97.1	ug/L	100	ug/L	97.1	90.0 - 110.0	MS	28-MAR-23 13:42	230328-1
	Calcium	4990	ug/L	5000	ug/L	99.8	90.0 - 110.0	MS	28-MAR-23 13:42	230328-1
CCV05										
	Boron	90.8	ug/L	100	ug/L	90.8	90.0 - 110.0	MS	28-MAR-23 14:02	230328-1
	Calcium	4800	ug/L	5000	ug/L	95.9	90.0 - 110.0	MS	28-MAR-23 14:02	230328-1
CCV06										
	Boron	105	ug/L	100	ug/L	104.8	90.0 - 110.0	MS	28-MAR-23 15:31	230328-1
	Calcium	5080	ug/L	5000	ug/L	101.5	90.0 - 110.0	MS	28-MAR-23 15:31	230328-1
CCV07										
	Boron	97.9	ug/L	100	ug/L	97.9	90.0 - 110.0	MS	28-MAR-23 15:47	230328-1
	Calcium	4900	ug/L	5000	ug/L	98.1	90.0 - 110.0	MS	28-MAR-23 15:47	230328-1

***Analytical Methods:**

MS EPA 200.8 SC_NPDES

METALS
-2b-
CRDL Standard for ICP & ICPMS

SDG No: 615220

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	17.2	ug/L	15	ug/L	114.9	70.0 - 130.0	MS	28-MAR-23 11:56	230328-1
	Calcium	241	ug/L	200	ug/L	120.5	70.0 - 130.0	MS	28-MAR-23 11:56	230328-1
CRDL02										
	Boron	21.9	ug/L	15	ug/L	146.1	70.0 - 130.0 *	MS	28-MAR-23 13:04	230328-1
	Calcium	276	ug/L	200	ug/L	137.9	70.0 - 130.0 *	MS	28-MAR-23 13:04	230328-1
CRDL03										
	Boron	16.8	ug/L	15	ug/L	111.8	70.0 - 130.0	MS	28-MAR-23 13:56	230328-1
	Calcium	244	ug/L	200	ug/L	122.1	70.0 - 130.0	MS	28-MAR-23 13:56	230328-1
CRDL04										
	Boron	16.9	ug/L	15	ug/L	112.9	70.0 - 130.0	MS	28-MAR-23 15:22	230328-1
	Calcium	239	ug/L	200	ug/L	119.6	70.0 - 130.0	MS	28-MAR-23 15:22	230328-1
CRDL05										
	Boron	17.6	ug/L	15	ug/L	117.2	70.0 - 130.0	MS	28-MAR-23 15:41	230328-1
	Calcium	242	ug/L	200	ug/L	121.1	70.0 - 130.0	MS	28-MAR-23 15:41	230328-1

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

EPA

Metals
-3a-
Initial and Continuing Calibration Blank Summary

SDG No.: 615220

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	28-MAR-23 11:54	230328-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	28-MAR-23 11:54	230328-1
CCB01										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	28-MAR-23 12:04	230328-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	28-MAR-23 12:04	230328-1
CCB02										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	28-MAR-23 12:10	230328-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	28-MAR-23 12:10	230328-1
CCB03										
	Boron	4.55	+/-7.5	B	4.0	15.0	LIQ	MS	28-MAR-23 13:23	230328-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	28-MAR-23 13:23	230328-1
CCB04										
	Boron	4.0	+/-7.5	B	4.0	15.0	LIQ	MS	28-MAR-23 13:44	230328-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	28-MAR-23 13:44	230328-1
CCB05										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	28-MAR-23 14:04	230328-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	28-MAR-23 14:04	230328-1
CCB06										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	28-MAR-23 15:33	230328-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	28-MAR-23 15:33	230328-1
CCB07										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	28-MAR-23 15:49	230328-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	28-MAR-23 15:49	230328-1

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

EPA

METALS
-3b-
PREPARATION BLANK SUMMARY

SDG NO. 615220
Contract: DMNN00101
Matrix: GW

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1205353565								
	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: 615220

Contract: DMNN00101 **Lab Code:** GEL

Instrument: ICPMS15

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	Analysis Date/Time	Run Number
ICSA01									
	Boron	3.92	ug/L					28-MAR-23 11:58	230328-1
	Calcium	99100	ug/L	100000	ug/L	99.1	80.0 - 120.0	28-MAR-23 11:58	230328-1
ICSAB01									
	Boron	23.7	ug/L	22.06	ug/L	107	80.0 - 120.0	28-MAR-23 12:00	230328-1
	Calcium	98000	ug/L	100000	ug/L	98	80.0 - 120.0	28-MAR-23 12:00	230328-1
ICSA02									
	Boron	7.07	ug/L					28-MAR-23 13:06	230328-1
	Calcium	101000	ug/L	100000	ug/L	101	80.0 - 120.0	28-MAR-23 13:06	230328-1
ICSAB02									
	Boron	27.2	ug/L	22.06	ug/L	123	80.0 - 120.0	28-MAR-23 13:08	230328-1
	Calcium	100000	ug/L	100000	ug/L	100	80.0 - 120.0	28-MAR-23 13:08	230328-1
ICSA03									
	Boron	3.71	ug/L					28-MAR-23 13:58	230328-1
	Calcium	96200	ug/L	100000	ug/L	96.2	80.0 - 120.0	28-MAR-23 13:58	230328-1
ICSAB03									
	Boron	21.9	ug/L	22.06	ug/L	99.3	80.0 - 120.0	28-MAR-23 14:00	230328-1
	Calcium	96700	ug/L	100000	ug/L	96.7	80.0 - 120.0	28-MAR-23 14:00	230328-1
ICSA04									
	Boron	4.91	ug/L					28-MAR-23 14:32	230328-1
	Calcium	98600	ug/L	100000	ug/L	98.6	80.0 - 120.0	28-MAR-23 14:32	230328-1
ICSAB04									
	Boron	22.7	ug/L	22.06	ug/L	103	80.0 - 120.0	28-MAR-23 14:34	230328-1
	Calcium	93600	ug/L	100000	ug/L	93.6	80.0 - 120.0	28-MAR-23 14:34	230328-1
ICSA05									
	Boron	3.96	ug/L					28-MAR-23 15:08	230328-1
	Calcium	98100	ug/L	100000	ug/L	98.1	80.0 - 120.0	28-MAR-23 15:08	230328-1
ICSAB05									
	Boron	23.5	ug/L	22.06	ug/L	106	80.0 - 120.0	28-MAR-23 15:10	230328-1

EPA

METALS
-4-
Interference Check Sample

SDG No: 615220

Contract: DMNN00101 **Lab Code:** GEL

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	Analysis Date/Time	Run Number
	Calcium	96200	ug/L	100000	ug/L	96.2	80.0 - 120.0	28-MAR-23 15:10	230328-1
ICSA06									
	Boron	4.34	ug/L					28-MAR-23 15:24	230328-1
	Calcium	93600	ug/L	100000	ug/L	93.6	80.0 - 120.0	28-MAR-23 15:24	230328-1
ICSAB06									
	Boron	24.9	ug/L	22.06	ug/L	113	80.0 - 120.0	28-MAR-23 15:26	230328-1
	Calcium	100000	ug/L	100000	ug/L	100	80.0 - 120.0	28-MAR-23 15:26	230328-1
ICSA07									
	Boron	4.05	ug/L					28-MAR-23 15:43	230328-1
	Calcium	97900	ug/L	100000	ug/L	97.9	80.0 - 120.0	28-MAR-23 15:43	230328-1
ICSAB07									
	Boron	21.4	ug/L	22.06	ug/L	96.9	80.0 - 120.0	28-MAR-23 15:45	230328-1
	Calcium	91400	ug/L	100000	ug/L	91.4	80.0 - 120.0	28-MAR-23 15:45	230328-1

METALS
-5a-

Matrix Spike Summary

SDG NO. 615220 **Client ID:** MW-FGD-19D-2023Q1S

Contract: DMNN00101 **Level:** Low

Matrix: GROUND WATER **% Solids:**

Sample ID: 615220004 **Spike ID:** 1205353568

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Boron	ug/L		2140		2080		100	54.5	N/A	MS
Calcium	ug/L		140000		134000		2000	299	N/A	MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

Metals
-6-
Duplicate Sample Summary

SDG No.: 615220 **Lab Code:** GEL

Contract: DMNN00101 **Client ID:** MW-FGD-19D-2023Q1D

Matrix: GROUND WATER **Level:** Low

Sample ID: 615220004 **Duplicate ID:** 1205353567 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Boron	ug/L	+/-1500	2080		2030		2.48		MS
Calcium	ug/L	+/-20%	134000		136000		1.8		MS

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

METALS
-7-
Laboratory Control Sample Summary

SDG NO. 615220

Contract: DMNN00101

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1205353566								
	Boron	ug/L	100	97.9		97.9	85-115	MS
	Calcium	ug/L	2000	2230		111	85-115	MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-9-
Serial Dilution Sample Summary

SDG NO. 615220 **Client ID:** MW-FGD-19D-2023Q1L

Contract: DMNN00101

Matrix: LIQUID **Level:** Low

Sample ID: 615220004 **Serial Dilution ID:** 1205353569

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Boron	41.6		54.4	B	30.641			MS
Calcium	2670		2530		5.221			MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-13-
SAMPLE PREPARATION SUMMARY

SDG No: 615220 **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	2402425						
1205353565	MB for batch 2402425	MB	G	23-MAR-23	50mL	50mL	
1205353566	LCS for batch 2402425	LCS	G	23-MAR-23	50mL	50mL	
1205353568	MW-FGD-19D-2023Q1S	MS	G	23-MAR-23	50mL	50mL	
1205353567	MW-FGD-19D-2023Q1D	DUP	G	23-MAR-23	50mL	50mL	
615220001	MW-FGD-16-2023Q1	SAMPLE	G	23-MAR-23	50mL	50mL	
615220002	MW-FGD-17-2023Q1	SAMPLE	G	23-MAR-23	50mL	50mL	
615220003	MW-FGD-18-2023Q1	SAMPLE	G	23-MAR-23	50mL	50mL	
615220004	MW-FGD-19D-2023Q1	SAMPLE	G	23-MAR-23	50mL	50mL	
615220005	MW-FGD-20AR-2023Q1	SAMPLE	G	23-MAR-23	50mL	50mL	
615220006	MW-FGD-21-2023Q1	SAMPLE	G	23-MAR-23	50mL	50mL	
615220007	FBLK-WMS-FGD-23101	SAMPLE	G	23-MAR-23	50mL	50mL	
615220008	FBLK-WMS-FGD-23102	SAMPLE	G	23-MAR-23	50mL	50mL	
615220009	DU-WMS-FGD-23101	SAMPLE	G	23-MAR-23	50mL	50mL	

EPA

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
Dominion Energy
SDG #: 615220

Product: **Ion Chromatography**
Analytical Method: EPA 300.0
Analytical Procedure: GL-GC-E-086 REV# 30
Analytical Batch: 2402854

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

GEL Sample ID#	Client Sample Identification
615220001	MW-FGD-16-2023Q1
615220002	MW-FGD-17-2023Q1
615220003	MW-FGD-18-2023Q1
615220004	MW-FGD-19D-2023Q1
615220005	MW-FGD-20AR-2023Q1
615220006	MW-FGD-21-2023Q1
615220007	FBLK-WMS-FGD-23101
615220008	FBLK-WMS-FGD-23102
615220009	DU-WMS-FGD-23101
1205354405	Method Blank (MB)
1205354406	Laboratory Control Sample (LCS)
1205354407	615220004(MW-FGD-19D-2023Q1) Sample Duplicate (DUP)
1205354408	615220004(MW-FGD-19D-2023Q1) Post Spike (PS)

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

Data Summary:

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

Technical Information

Sample Dilutions
The following samples 1205354407 (MW-FGD-19D-2023Q1DUP), 1205354408 (MW-FGD-19D-2023Q1PS), 615220001 (MW-FGD-16-2023Q1), 615220002 (MW-FGD-17-2023Q1), 615220003 (MW-FGD-18-2023Q1), 615220004 (MW-FGD-19D-2023Q1), 615220005 (MW-FGD-20AR-2023Q1), 615220006 (MW-FGD-21-2023Q1) and 615220009 (DU-WMS-FGD-23101) 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	615220						
	001	**002**	**003**	**004**	**005**	**006**	**009**
Chloride	5X	25X	125X	125X	200X	1X	50X
Sulfate	5X	25X	125X	5X	200X	10X	50X

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 Batches: 2402709 and 2402712

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

GEL Sample ID#	Client Sample Identification
615220001	MW-FGD-16-2023Q1
615220002	MW-FGD-17-2023Q1
615220003	MW-FGD-18-2023Q1
615220004	MW-FGD-19D-2023Q1
615220005	MW-FGD-20AR-2023Q1
615220006	MW-FGD-21-2023Q1
615220007	FBLK-WMS-FGD-23101
615220008	FBLK-WMS-FGD-23102
615220009	DU-WMS-FGD-23101
1205354121	Method Blank (MB)
1205354122	Laboratory Control Sample (LCS)
1205354123	615214003(NonSDG) Sample Duplicate (DUP)
1205354124	615220004(MW-FGD-19D-2023Q1) Sample Duplicate (DUP)
1205354131	Method Blank (MB)
1205354132	Laboratory Control Sample (LCS)
1205354133	615230001(NonSDG) Sample Duplicate (DUP)
1205354134	615298001(NonSDG) Sample Duplicate (DUP)
1205354135	615312006(NonSDG) Sample Duplicate (DUP)

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

Data Summary:

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

Quality Control (QC) Information

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

Analyte	Sample	Value
Total Dissolved Solids	1205354124 (MW-FGD-19D-2023Q1DUP)	17.2* (0%-5%)

Miscellaneous Information

Additional Comments
Sample filtration took > 10 minutes; therefore as prescribed in the method, a reduced aliquot was used. 1205354123

(Non SDG 615214003DUP), 1205354124 (MW-FGD-19D-2023Q1DUP), 615220002 (MW-FGD-17-2023Q1), 615220003 (MW-FGD-18-2023Q1), 615220004 (MW-FGD-19D-2023Q1), 615220005 (MW-FGD-20AR-2023Q1) and 615220009 (DU-WMS-FGD-23101). 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: 615220 GEL Work Order: 615220

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: 04 APR 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: April 4, 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-16-2023Q1	Project:	DMNN00101
Sample ID:	615220001	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	21-MAR-23 10:05		
Receive Date:	22-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		28.4	0.335	1.00	mg/L		5	JLD1	03/23/23	2052	2402854	1
Sulfate		57.4	0.665	2.00	mg/L		5					
Fluoride		0.193	0.0330	0.100	mg/L		1	JLD1	03/23/23	1354	2402854	2
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		184	2.38	10.0	mg/L			CH6	03/23/23	1132	2402709	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: April 4, 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-17-2023Q1	Project:	DMNN00101
Sample ID:	615220002	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	20-MAR-23 14:56		
Receive Date:	22-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		0.526	0.0330	0.100	mg/L		1	JLD1	03/23/23	1423	2402854	1
Chloride		110	1.68	5.00	mg/L		25	JLD1	03/23/23	2122	2402854	2
Sulfate		48.6	3.33	10.0	mg/L		25					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		896	4.76	20.0	mg/L			CH6	03/23/23	1132	2402709	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: April 4, 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-18-2023Q1	Project:	DMNN00101
Sample ID:	615220003	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	20-MAR-23 16:10		
Receive Date:	22-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		1410	8.38	25.0	mg/L		125	JLD1	03/23/23	2152	2402854	1
Sulfate		60.2	16.6	50.0	mg/L		125					
Fluoride		0.611	0.0330	0.100	mg/L		1	JLD1	03/23/23	1453	2402854	2
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		2560	23.8	100	mg/L			CH6	03/23/23	1132	2402709	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: April 4, 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-19D-2023Q1	Project:	DMNN00101
Sample ID:	615220004	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	20-MAR-23 15:00		
Receive Date:	22-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		645	8.38	25.0	mg/L		125	JLD1	03/23/23	2351	2402854	1
Fluoride		0.453	0.0330	0.100	mg/L		1	JLD1	03/23/23	1523	2402854	2
Sulfate		38.1	0.665	2.00	mg/L		5	JLD1	03/24/23	0121	2402854	3
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		1060	23.8	100	mg/L			CH6	03/23/23	1132	2402709	4

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	EPA 300.0	
4	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: April 4, 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-20AR-2023Q1	Project:	DMNN00101
Sample ID:	615220005	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	20-MAR-23 16:31		
Receive Date:	22-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		563	13.4	40.0	mg/L		200	JLD1	03/24/23	0251	2402854	1
Sulfate		160	26.6	80.0	mg/L		200					
Fluoride	J	0.0906	0.0330	0.100	mg/L		1	JLD1	03/23/23	1823	2402854	2
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		1280	23.8	100	mg/L			CH6	03/23/23	1132	2402709	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: April 4, 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-21-2023Q1	Project:	DMNN00101
Sample ID:	615220006	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	21-MAR-23 11:10		
Receive Date:	22-MAR-23		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 300.0 Anions Liquid "As Received"												
Chloride		3.27	0.0670	0.200	mg/L		1	JLD1	03/23/23	1852	2402854	1
Fluoride	U	ND	0.0330	0.100	mg/L		1					
Sulfate		85.0	1.33	4.00	mg/L		10	JLD1	03/24/23	0320	2402854	2
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		238	2.38	10.0	mg/L			CH6	03/23/23	1132	2402709	3

The following Analytical Methods were performed:

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

Notes:

Column headers are defined as follows:

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

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Certificate of Analysis

Report Date: April 4, 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-WMS-FGD-23101	Project:	DMNN00101
Sample ID:	615220007	Client ID:	DMNN001
Matrix:	AQ		
Collect Date:	20-MAR-23 15:15		
Receive Date:	22-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	U	ND	0.0670	0.200	mg/L		1	JLD1	03/23/23	1922	2402854	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	03/23/23	1132	2402709	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: April 4, 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-WMS-FGD-23102	Project:	DMNN00101
Sample ID:	615220008	Client ID:	DMNN001
Matrix:	AQ		
Collect Date:	21-MAR-23 10:10		
Receive Date:	22-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	U	ND	0.0670	0.200	mg/L		1	JLD1	03/23/23	1952	2402854	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	03/23/23	1132	2402709	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: April 4, 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-WMS-FGD-23101	Project:	DMNN00101
Sample ID:	615220009	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	20-MAR-23 12:00		
Receive Date:	22-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		0.453	0.0330	0.100	mg/L		1	JLD1	03/23/23	2022	2402854	1
Chloride		110	3.35	10.0	mg/L		50	JLD1	03/24/23	0350	2402854	2
Sulfate		47.6	6.65	20.0	mg/L		50					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		902	4.76	20.0	mg/L			CH6	03/23/23	1121	2402712	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

Quality Control Summary

QC Summary

Report Date: April 4, 2023

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

Contact: **Kelly Hicks**

Workorder: **615220**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 2402854										
QC1205354407 615220004 DUP										
Chloride		645		645	mg/L	0.0155		(0%-20%)	JLD1	03/24/23 00:21
Fluoride		0.453		0.501	mg/L	10.1 ^		(+/-0.100)		03/23/23 17:23
Sulfate		38.1		38.2	mg/L	0.134		(0%-20%)		03/24/23 01:51
QC1205354406 LCS										
Chloride	5.00			4.94	mg/L		98.9	(90%-110%)		03/23/23 13:24
Fluoride	2.50			2.54	mg/L		101	(90%-110%)		
Sulfate	10.0			10.1	mg/L		101	(90%-110%)		
QC1205354405 MB										
Chloride			U	ND	mg/L					03/23/23 12:54
Fluoride			U	ND	mg/L					
Sulfate			U	ND	mg/L					
QC1205354408 615220004 PS										
Chloride	5.00	5.16		10.3	mg/L		103	(90%-110%)		03/24/23 00:51
Fluoride	2.50	0.453		2.94	mg/L		99.5	(90%-110%)		03/23/23 17:53
Sulfate	10.0	7.62		17.6	mg/L		100	(90%-110%)		03/24/23 02:21

QC Summary

Workorder: **615220**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Solids Analysis										
Batch 2402709										
QC1205354123 615214003 DUP										
Total Dissolved Solids		5230		5370	mg/L	2.64		(0%-5%)	CH6	03/23/23 11:32
QC1205354124 615220004 DUP										
Total Dissolved Solids		1060		1260	mg/L	17.2*		(0%-5%)		03/23/23 11:32
QC1205354122 LCS										
Total Dissolved Solids	300			304	mg/L		101	(95%-105%)		03/23/23 11:32
QC1205354121 MB										
Total Dissolved Solids			U	ND	mg/L					03/23/23 11:32
Batch 2402712										
QC1205354133 615230001 DUP										
Total Dissolved Solids		81.0		80.0	mg/L	1.24		(0%-5%)	CH6	03/23/23 11:21
QC1205354134 615298001 DUP										
Total Dissolved Solids		203		204	mg/L	0.491		(0%-5%)		03/23/23 11:21
QC1205354135 615312006 DUP										
Total Dissolved Solids		34.0		31.0	mg/L	9.23 ^		(+/-10.0)		03/23/23 11:21
QC1205354132 LCS										
Total Dissolved Solids	300			302	mg/L		101	(95%-105%)		03/23/23 11:21
QC1205354131 MB										
Total Dissolved Solids			U	ND	mg/L					03/23/23 11:21

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

QC Summary

Workorder: **615220**

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

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

Williams Power Station Groundwater Sampling
Samples Collected between: 3/20/2023 and 3/23/2023

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:

615220

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-20AR-2023Q1	MW-FGD-20AR	N	EPA 300.0	Fluoride	N	0.0906	J	RL	0.0330	0.100		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: Williams Generating Station
SDG: 615220

Lab Sample ID	615220001
Sys Sample Code	MW-FGD-16-2023Q1
Sample Name	MW-FGD-16-2023Q1
Sample Date	3/21/2023 10:05:00 AM
Location	WMS-MW-FGD-16 / MW-FGD-16
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	37.4				4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	15200				30.0	30.0	100	Y	Yes	1	NA
EPA 300.0	Fluoride	16984-48-8	N	mg/L	0.193				0.0330	0.0330	0.100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	28.4				0.335	0.335	1.00	Y	Yes	5	NA
	Sulfate	14808-79-8	N	mg/L	57.4				0.665	0.665	2.00	Y	Yes	5	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	184				2.38	2.38	10.0	Y	Yes	1	NA

Lab Sample ID	615220002
Sys Sample Code	MW-FGD-17-2023Q1
Sample Name	MW-FGD-17-2023Q1
Sample Date	3/20/2023 2:56:00 PM
Location	WMS-MW-FGD-17 / MW-FGD-17
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	146				4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	167000				300	300	1000	Y	Yes	10	NA
EPA 300.0	Fluoride	16984-48-8	N	mg/L	0.526				0.0330	0.0330	0.100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	110				1.68	1.68	5.00	Y	Yes	25	NA
	Sulfate	14808-79-8	N	mg/L	48.6				3.33	3.33	10.0	Y	Yes	25	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	896				4.76	4.76	20.0	Y	Yes	1	NA

Lab Sample ID	615220003
Sys Sample Code	MW-FGD-18-2023Q1
Sample Name	MW-FGD-18-2023Q1
Sample Date	3/20/2023 4:10:00 PM
Location	WMS-MW-FGD-18 / MW-FGD-18
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	3620				200	200	750	Y	Yes	50	NA
	Calcium	7440-70-2	T	ug/L	236000				1500	1500	5000	Y	Yes	50	NA
EPA 300.0	Fluoride	16984-48-8	N	mg/L	0.611				0.0330	0.0330	0.100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	1410				8.38	8.38	25.0	Y	Yes	125	NA
	Sulfate	14808-79-8	N	mg/L	60.2				16.6	16.6	50.0	Y	Yes	125	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	2560				23.8	23.8	100	Y	Yes	1	NA

Lab Sample ID	615220004
Sys Sample Code	MW-FGD-19D-2023Q1
Sample Name	MW-FGD-19D-2023Q1
Sample Date	3/20/2023 3:00:00 PM
Location	WMS-MW-FGD-19 / MW-FGD-19
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	2080				200	200	750	Y	Yes	50	NA
	Calcium	7440-70-2	T	ug/L	134000				1500	1500	5000	Y	Yes	50	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	645				8.38	8.38	25.0	Y	Yes	125	NA
	Sulfate	14808-79-8	N	mg/L	38.1				0.665	0.665	2.00	Y	Yes	5	NA
EPA 300.0	Fluoride	16984-48-8	N	mg/L	0.453				0.0330	0.0330	0.100	Y	Yes	1	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	1060				23.8	23.8	100	Y	Yes	1	NA

Lab Sample ID	615220005
Sys Sample Code	MW-FGD-20AR-2023Q1
Sample Name	MW-FGD-20AR-2023Q1
Sample Date	3/20/2023 4:31:00 PM
Location	WMS-MW-FGD-20AR / MW-FGD-20AR
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	3410				200	200	750	Y	Yes	50	NA
	Calcium	7440-70-2	T	ug/L	280000				1500	1500	5000	Y	Yes	50	NA
EPA 300.0	Fluoride	16984-48-8	N	mg/L	0.0906	J	RL		0.0330	0.0330	0.100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	563				13.4	13.4	40.0	Y	Yes	200	NA
	Sulfate	14808-79-8	N	mg/L	160				26.6	26.6	80.0	Y	Yes	200	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	1280				23.8	23.8	100	Y	Yes	1	NA

Lab Sample ID	615220006
Sys Sample Code	MW-FGD-21-2023Q1
Sample Name	MW-FGD-21-2023Q1
Sample Date	3/21/2023 11:10:00 AM
Location	WMS-MW-FGD-21 / MW-FGD-21
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	20.0				4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	45600				300	300	1000	Y	Yes	10	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	3.27				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
EPA 300.0	Sulfate	14808-79-8	N	mg/L	85.0				1.33	1.33	4.00	Y	Yes	10	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	238				2.38	2.38	10.0	Y	Yes	1	NA

Facility: Williams Generating Station
SDG: 615220

Lab Sample ID	615220007
Sys Sample Code	FBLK-WMS-FGD-23101
Sample Name	FBLK-WMS-FGD-23101
Sample Date	3/20/2023 3:15:00 PM
Location	WMS-FB / Field Blank
Sample Type	FB
Matrix	AQ
Parent Sample	

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

Lab Sample ID	615220008
Sys Sample Code	FBLK-WMS-FGD-23102
Sample Name	FBLK-WMS-FGD-23102
Sample Date	3/21/2023 10:10:00 AM
Location	WMS-FB / Field Blank
Sample Type	FB
Matrix	AQ
Parent Sample	

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

Lab Sample ID	615220009
Sys Sample Code	DU-WMS-FGD-23101
Sample Name	DU-WMS-FGD-23101
Sample Date	3/20/2023 12:00:00 PM
Location	WMS-MW-FGD-17 / MW-FGD-17
Sample Type	FD
Matrix	GW
Parent Sample	MW-FGD-17-2023Q1

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	145				4.00	4.00	15.0	Y	Yes	1	NA
	Calcium	7440-70-2	T	ug/L	151000				300	300	1000	Y	Yes	10	NA
EPA 300.0	Fluoride	16984-48-8	N	mg/L	0.453				0.0330	0.0330	0.100	Y	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	110				3.35	3.35	10.0	Y	Yes	50	NA
	Sulfate	14808-79-8	N	mg/L	47.6				6.65	6.65	20.0	Y	Yes	50	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	902				4.76	4.76	20.0	Y	Yes	1	NA

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

Dominion Groundwater Level Measurement Log
For Williams Generating Station

Program: CCR	**Project Number:** 416559.6.0
Date: 2023-10-03	**Sampler Name(s):** Jason Yonts
Notes: Gauged going into high tide (12:24)	

Well ID	Time	Depth to GW (btoc, ft)	Depth to Bottom (btoc, ft)	Notes
WMS-MW-FGD-16	09:30	8.64		
WMS-GW-09	09:36	6.16		
WMS-GW-04A	09:39	10.28		
WMS-GW-06R	09:41	10.30		
WMS-GW-07R	09:44	11.77		
WMS-GW-08	09:47	11.36		
WMS-GW-01R	09:49	10.60		
WMS-GW-02R	09:51	11.30		
WMS-MW-FGD-18	09:59	8.65		
WMS-MW-FGD-17	10:01	7.56		
Pond E	10:04	4.93		
Pond D	10:07	3.65		
Pond B	10:11	2.97		
WMS-MW-FGD-23	10:14	7.99		
WMS-MW-FGD-24	10:17	8.12		
WMS-MW-FGD-19D	10:20	9.03		
WMS-MW-FGD-20AR	10:22	6.06		
WMS-MW-FGD-22	10:24	7.79		
Pond A	10:30	4.54		
WMS-MW-FGD-21	14:38	9.66		

Field Team Leader Signature:	**Signature Date:** 2023-10-03

WATER SAMPLE LOG: MW-FGD-18-2023Q4
WILLIAMS GENERATING STATION

PREPARED BY	CHECKED BY
BY: Sam Thorsland DATE: 2023-10-03	BY: David Szynal DATE: 2023-10-10

WELL ID: WMS-MW-FGD-18		
TASK CODE: WMS-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 7.98	TOTAL DEPTH TO WATER (FT): 18.26	TOTAL WATER COLUMN (FT): 10.28
TOP OF SCREEN (FT): 8.26	BOTTOM OF SCREEN (FT): 18.26	METHOD OF PURGING: Low Flow
PUMP TYPE: Peristaltic	PUMP START TIME: 13:17	PUMP INTAKE DEPTH/SAMPLE DEPTH (FT): 13

PURGING	
METHOD: Low Flow	MEASURE POINT: Top of Casing
PUMP TYPE: Peristaltic	PUMP INTAKE/SAMPLE DEPTH (FT) : 13
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
13:20	150	6.72	4434.9	-108.8	0.5	2.69	26.37	7.82	
13:35	150	6.61	4795.9	-118	0.1	1.62	25.42	7.94	
13:40	150	6.6	4887.6	-117	0.1	0.59	25.23	7.96	
13:45	150	6.59	5064.2	-115.8	0.09	0.4	25.05	7.96	
13:50	150	6.57	5270.6	-115	0.09	0.26	25.29	7.96	
13:53	150	6.54	5477.9	-114.6	0.09	0.36	25.28	7.96	
13:56	150	6.52	5735.4	-115.1	0.09	0.32	25.22	7.96	
13:59	150	6.51	5856.6	-114.4	0.1	0.44	25.33	7.94	
14:02	150	6.5	5884.7	-113.5	0.12	0.43	25.33	7.93	

SAMPLE	
TIME: 14:02	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML): 6750	TIME POST SAMPLE: 14:15
WATER LEVEL POST-SAMPLE: 7.94	FLOW RATE POST-SAMPLE (ML/MIN): 150
TURBIDITY POST-SAMPLE (NTU): 0.7	COLOR POST SAMPLE: Clear
ODOR POST-SAMPLE: None	STABILITY REACHED: Y
SAMPLE COMMENTS:	

SAMPLE QA					
TYPE	**ID**	**TIME**	**TYPE**	**ID**	**TIME**
FIELD BLANK	FBLK-WMS-FGD-23401	14:00	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**
0130801H	1	250	HDPE	HNO3
	1	250	HDPE	UNPRESERVED
	1	125	HDPE	UNPRESERVED

WATER SAMPLE LOG: MW-FGD-19D-2023Q4
WILLIAMS GENERATING STATION

PREPARED BY	CHECKED BY
BY: Jason Yonts DATE: 2023-10-03	BY: David Szynal DATE: 2023-10-10

WELL ID: WMS-MW-FGD-19D		
TASK CODE: WMS-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 8.68	TOTAL DEPTH TO WATER (FT): 28.16	TOTAL WATER COLUMN (FT): 19.48
TOP OF SCREEN (FT): 18	BOTTOM OF SCREEN (FT): 28	METHOD OF PURGING: Low Flow
PUMP TYPE: Peristaltic	PUMP START TIME: 12:07	PUMP INTAKE DEPTH/SAMPLE DEPTH (FT): 23.5

PURGING	
METHOD: Low Flow	MEASURE POINT: Top of Casing
PUMP TYPE: Peristaltic	PUMP INTAKE/SAMPLE DEPTH (FT) : 23.5
PURGE AND STABILIZATION NOTES:	

PURGE MEASURES

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (US/CM)	ORP (MV)	DO (MG/L)	TURDIDITY (NTU)	TEMPERATURE (C)	WATER LEVEL	COMMENTS
12:11	100	6.98	2508.7	-93.3	0.66	19.1	26.65	8.75	ORANGE PARTICULATE IN WATER
12:16	100	7.01	2554.9	-94.4	0.11	14.05	25.01	8.75	
12:21	100	7.02	2555.6	-95.8	0.06	11.38	24.78	8.73	
12:26	100	7.01	2566.1	-96.1	0.07	8.49	24.69	8.71	WATER LEVEL INCREASING AT SAME PURGE RATE
12:31	100	7.01	2638.3	-99.9	0.04	6.55	24.71	8.69	
12:36	100	7.02	2670.9	-105.2	0.05	4.51	24.69	8.68	
12:41	100	7.08	2739.5	-120.4	0.05	2.86	24.62	8.66	
12:46	100	7.1	2762.1	-130.5	0.04	2.41	24.41	8.64	
12:51	100	7.12	2774.4	-133.4	0.04	1.82	24.51	8.62	
12:56	100	7.11	2781.1	-133.5	0.04	3.41	24.46	8.6	
13:01	100	7.11	2783.5	-134.7	0.04	1.45	24.48	8.58	

SAMPLE	
TIME: 13:01	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML): 5400	TIME POST SAMPLE: 13:09
WATER LEVEL POST-SAMPLE: 8.57	FLOW RATE POST-SAMPLE (ML/MIN): 100
TURBIDITY POST-SAMPLE (NTU): 0.99	COLOR POST SAMPLE: Clear
ODOR POST-SAMPLE: None	STABILITY REACHED: Y
SAMPLE COMMENTS:	

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

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

WATER SAMPLE LOG: MW-FGD-20AR-2023Q4
WILLIAMS GENERATING STATION

PREPARED BY	CHECKED BY
BY: Jason Yonts DATE: 2023-10-03	BY: David Szynal DATE: 2023-10-10

WELL ID: WMS-MW-FGD-20AR		
TASK CODE: WMS-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 5.99	TOTAL DEPTH TO WATER (FT): 22.53	TOTAL WATER COLUMN (FT): 16.54
TOP OF SCREEN (FT): 10	BOTTOM OF SCREEN (FT): 20	METHOD OF PURGING: Low Flow
PUMP TYPE: Peristaltic	PUMP START TIME: 10:53	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: Water level increasing	

PURGE MEASURES

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (US/CM)	ORP (MV)	DO (MG/L)	TURDIDITY (NTU)	TEMPERATURE (C)	WATER LEVEL	COMMENTS
11:16	150	6.77	2986.2	-120.8	0.06	1.11	23.78	5.98	
11:26	150	6.79	2971.5	-124.2	0.06	1.07	24.01	5.91	
11:31	150	6.78	2967.3	-124.9	0.05	3.03	24.06	5.88	
11:36	150	6.79	2952.1	-125.3	0.05	0.54	54.35	5.86	
11:41	150	6.79	2958.2	-125.7	0.05	0.64	24.54	5.84	
11:46	150	6.78	2961.9	-125.7	0.05	0.46	24.73	5.83	

SAMPLE	
TIME: 11:46	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML): 7950	TIME POST SAMPLE: 11:59
WATER LEVEL POST-SAMPLE: 5.68	FLOW RATE POST-SAMPLE (ML/MIN): 150
TURBIDITY POST-SAMPLE (NTU): 0.35	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**
	2	250	HDPE	HNO3
	2	250	HDPE	UNPRESERVED
	2	125	HDPE	UNPRESERVED

WATER SAMPLE LOG: MW-FGD-23-2023Q4
WILLIAMS GENERATING STATION

PREPARED BY	CHECKED BY
BY: Sam Thorsland DATE: 2023-10-03	BY: David Szynal DATE: 2023-10-10

WELL ID: WMS-MW-FGD-23		
TASK CODE: WMS-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 7.93	TOTAL DEPTH TO WATER (FT): 15.16	TOTAL WATER COLUMN (FT): 7.23
TOP OF SCREEN (FT): 15.16	BOTTOM OF SCREEN (FT): 25.16	METHOD OF PURGING: Low Flow
PUMP TYPE: Peristaltic	PUMP START TIME: 12:16	PUMP INTAKE DEPTH/SAMPLE DEPTH (FT): 20

PURGING	
METHOD: Low Flow	MEASURE POINT: Top of Casing
PUMP TYPE: Peristaltic	PUMP INTAKE/SAMPLE DEPTH (FT) : 20
PURGE AND STABILIZATION NOTES:	

PURGE MEASURES

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (US/CM)	ORP (MV)	DO (MG/L)	TURDIDITY (NTU)	TEMPERATURE (C)	WATER LEVEL	COMMENTS
12:20	280	6.31	3732.2	-112.4	0.11	0.89	26.7	8.01	
12:35	280	6.2	8210.6	-113.9	0.05	0.77	25.97	8.03	
12:40	280	6.16	9555.9	-109.4	0.05	0.63	25.95	8.03	
12:45	280	6.15	9937.1	-107.8	0.05	0.86	25.92	8.03	
12:50	280	6.16	10265	-106.7	0.05	0.32	25.83	8.03	
12:53	280	6.16	10427	-106.1	0.04	0.35	25.78	8.03	
12:56	280	6.16	10545	-105.8	0.04	0.58	25.79	8.03	

SAMPLE	
TIME: 12:56	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML): 11200	TIME POST SAMPLE: 13:03
WATER LEVEL POST-SAMPLE: 8.03	FLOW RATE POST-SAMPLE (ML/MIN): 280
TURBIDITY POST-SAMPLE (NTU): 0.86	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**
0130801H	1	250	HDPE	HNO3
	1	250	HDPE	UNPRESERVED
	1	125	HDPE	UNPRESERVED

WATER SAMPLE LOG: MW-FGD-24-2023Q4
WILLIAMS GENERATING STATION

PREPARED BY	CHECKED BY
BY: Sam Thorsland DATE: 2023-10-03	BY: David Szynal DATE: 2023-10-10

WELL ID: WMS-MW-FGD-24		
TASK CODE: WMS-GW-2023-10	WELL TYPE: Monitoring Well	WELL DIAMETER (IN.): 2
INITIAL DEPTH TO WATER (FT): 8.18	TOTAL DEPTH TO WATER (FT): 25.02	TOTAL WATER COLUMN (FT): 16.84
TOP OF SCREEN (FT): 15.02	BOTTOM OF SCREEN (FT): 25.02	METHOD OF PURGING: Low Flow
PUMP TYPE: Peristaltic	PUMP START TIME: 11:13	PUMP INTAKE DEPTH/SAMPLE DEPTH (FT): 20

PURGING	
METHOD: Low Flow	MEASURE POINT: Top of Casing
PUMP TYPE: Peristaltic	PUMP INTAKE/SAMPLE DEPTH (FT) : 20
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
11:20	200	5.27	13757	-13.4	0.18	6.62	26.73	8.22	
11:35	200	5.68	11859	-96.4	0.06	1.37	25.81	8.25	
11:40	200	5.75	11539	-101.4	0.06	1.15	25.74	8.25	
11:45	200	5.83	11430	-104.9	0.05	0.77	25.69	8.25	
11:50	200	5.87	11404	-106.2	0.05	0.63	25.6	8.25	

SAMPLE	
TIME: 11:50	METHOD OF SAMPLING: Low Flow
TOTAL VOL. PURGED (ML): 7400	TIME POST SAMPLE: 12:05
WATER LEVEL POST-SAMPLE: 8.25	FLOW RATE POST-SAMPLE (ML/MIN): 200
TURBIDITY POST-SAMPLE (NTU): 0.39	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-WMS-FGD-23401	
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**
0130801H	2	250	HDPE	HNO3
	2	250	HDPE	UNPRESERVED
	2	125	HDPE	UNPRESERVED

TRC

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	Williams Station	MODEL:	Aqua troll 400	SAMPLER:	JY / ST
PROJECT NO.:	416559.0006.0000	SERIAL #:	909268	DATE:	10/3/23

PH CALIBRATION CHECK

pH 7 (LOT #): 2229039 (EXP. DATE): 4/24 PRE-CAL. READING / STANDARD	pH 4 / 10 (LOT #): 22110130 (EXP. DATE): 4/24 PRE-CAL. READING / STANDARD	CAL. RANGE	TIME
6.62 / 7.00	9.76 / 10.00	☐ WITHIN RANGE	1057
/	4.54 / 4.00	☐ WITHIN RANGE	1101
7.00 / 7.00	10.01 / 10.00	☒ WITHIN RANGE	1100
/	3.99 / 4.00	☒ WITHIN RANGE	1103

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): 24000044 (EXP. DATE): 5/24 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
4415.1 / 4490	24.20	☐ WITHIN RANGE	1102
4484.0 / 4490	24.10	☒ WITHIN RANGE	1103
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

ORP CALIBRATION CHECK

CAL. READING (LOT #): 24002258 (EXP. DATE): 6/24 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
229.1 / 228	24.24	☐ WITHIN RANGE	1104
228.01 / 228	24.20	☒ WITHIN RANGE	1105
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CALIBRATION READING (mg/L)	CAL. RANGE	TIME
Baro: 766.28	☒ WITHIN RANGE	1055
Temp: 24.07	☐ WITHIN RANGE	
Calc: 8.4	☐ WITHIN RANGE	
Act: 8.49	☐ WITHIN RANGE	

TURBIDITY CALIBRATION CHECK

CALIBRATION READING (NTU) (LOT #): N/A (EXP. DATE): PRE-CAL. READING / STANDARD	(LOT #): N/A (EXP. DATE): POST-CAL. READING / STANDARD	CAL. RANGE	TIME
0.08 / 0.00	0.00 / 0.00	☒ WITHIN RANGE	1107
0.94 / 1.00	0.96 / 1.00	☒ WITHIN RANGE	1107
8.21 / 10.00	10.00 / 10.00	☒ WITHIN RANGE	1108
/	/	☐ WITHIN RANGE	

COMMENTS

☒ AUTOCAL SOLUTION (LOT #): 24000044 (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

Signed 10/3/23

SIGNED DATE

CHECKED BY 10/9/23

CHECKED BY DATE

REVISED 06/2011

TRC

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	Williams Station	MODEL:	AquaTroll 400	SAMPLER:	(JY) / ST
PROJECT NO.:	416559.0006.0000	SERIAL #:	851425	DATE:	10/3/23

PH CALIBRATION CHECK

Autocal

pH 7 (LOT #): 2229839 (EXP. DATE): 4/24 PRE-CAL. READING / STANDARD	pH 4 / 10 (LOT #): 2210130 (EXP. DATE): 4/24 PRE-CAL. READING / STANDARD	CAL. RANGE	TIME
3.98 / 4.00	/	☒ WITHIN RANGE	1102
9.91 / 10.00	/	☒ WITHIN RANGE	1104
6.68 / 7.00	6.99 / 7.00	☒ WITHIN RANGE	1105
/	/	☐ WITHIN RANGE	

ORP CALIBRATION CHECK

CAL. READING (LOT #): 240022.58 (EXP. DATE): 6/24 PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
228.4 / 228.0	22.86	☒ WITHIN RANGE	1108
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

TURBIDITY CALIBRATION CHECK

CALIBRATION READING (NTU) (LOT #): N/A (EXP. DATE): PRE-CAL. READING / STANDARD	(LOT #): N/A (EXP. DATE): POST-CAL. READING / STANDARD	CAL. RANGE	TIME
0.00 / 0.00	/	☒ WITHIN RANGE	1054
0.95 / 1.00	/	☒ WITHIN RANGE	1055
10.10 / 10.00	/	☒ WITHIN RANGE	1056
/	/	☐ WITHIN RANGE	

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): Autocal (EXP. DATE): PRE-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
4481.6 / 4490	23.71	☒ WITHIN RANGE	1106
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CALIBRATION READING (mg/L)	CAL. RANGE	TIME
Baro: 766.40 mm Hg Temp: 22.43°C Calc: 8.7 mg/L Actual: 8.66 mg/L	☒ WITHIN RANGE	1058
	☐ WITHIN RANGE	
	☐ WITHIN RANGE	
	☐ WITHIN RANGE	

COMMENTS

☒ AUTOCAL SOLUTION (LOT #): 24000044 (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

SIGNED _____ 10/3/23 DATE

CHECKED BY _____ 10/9/23 DATE

REVISED 06/2011

GEL Laboratories LLC
a member of The GEL Group INC

October 18, 2023

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

Re: CCR Groundwater Monitoring - Level 1 Package
Work Order: 639969

Dear Kelly Hicks:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on October 05, 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
Chain of Custody: 202303211
Enclosures

Table of Contents

Case Narrative

Receipt Narrative
for
Dominion Energy (50149867)
SDG: 639969

October 18, 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 05, 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.

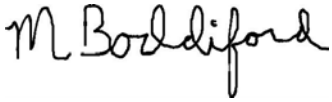
Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
639969001	MW-FGD-18-2023Q4
639969002	MW-FGD-19D-2023Q4
639969003	MW-FGD-20AR-2023Q4
639969004	MW-FGD-23-2023Q4
639969005	MW-FGD-24-2023Q4
639969006	FBLK-WMS-FGD-23401
639969007	DU-WMS-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

SDG: 639969

Page: 1 of 1
Project # 416559.6.0.6.2
GEL Quote #:
COC Number (1): 202303211
PO Number: PO 50149867

GEL Laboratories LLC 639969
gel.com
Chemistry | Radiochemistry | Radiobioassay | Specialty Analytics

Chain of Custody and Analytical Request

GEL Work Order Number: 232258 **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: Williams Station New FGD CCR 2023Q4 Fax #
Address: Goose Creek, South Carolina
Collected By: J. Yonts / 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-EPA 300.0	Total APP III Metals NI	<-- Preservative Type (6)	Comments
MW-FGD-18-2023Q4	10/3/23	1402	N	N	GW	N		3	X	X	X		EPA 200.8 - Boron, Calcium
MW-FGD-19D-2023Q4	10/3/23	1301	N	N	GW	N		3	X	X	X		
MW-FGD-20AR-2023Q4 *MS/MSD	10/3/23	1146	N	N	GW	N		6	X	X	X		
MW-FGD-23-2023Q4	10/3/23	1256	N	N	GW	N		3	X	X	X		
MW-FGD-24-2023Q4	10/3/23	1150	N	N	GW	N		3	X	X	X		
FBLK-WMS-FGD-23401	10/3/23	1400	FB	N	AQ	N		3	X	X	X		see attached work
DU-WMS-FGD-23401	10/3/23	—	FD	N	GW	N		3	X	X	X		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	[signature]	10/5/23	0820	[signature]	10/5/23	820
2						
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:*** 3 °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: DMNN	SDG/AR/COC/Work Order: 639969
Received By: QG	Date Received: 10/4/23
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other

MB

n/a

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 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: 3°C
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR1-23 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: 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 MG Date 10/6/23 Page 1 of 1

GL-CHL-SR-001 Rev 7

Laboratory Certifications

List of current GEL Certifications as of 18 October 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	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	T104704235-23-21
Utah NELAP	SC000122022-37
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
Dominion Energy
SDG #: 639969

Product: Determination of Metals by ICP-MS
Analytical Method: EPA 200.8 SC_NPDES
Analytical Procedure: GL-MA-E-014 REV# 36
Analytical Batch: 2504262

Preparation Method: EPA 200.2
Preparation Procedure: GL-MA-E-016 REV# 18
Preparation Batch: 2504261

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

GEL Sample ID#	Client Sample Identification
639969001	MW-FGD-18-2023Q4
639969002	MW-FGD-19D-2023Q4
639969003	MW-FGD-20AR-2023Q4
639969004	MW-FGD-23-2023Q4
639969005	MW-FGD-24-2023Q4
639969006	FBLK-WMS-FGD-23401
639969007	DU-WMS-FGD-23401
1205538522	Method Blank (MB)**ICP-MS**
1205538523	Laboratory Control Sample (LCS)
1205538526	639969003(MW-FGD-20AR-2023Q4L) Serial Dilution (SD)
1205538524	639969003(MW-FGD-20AR-2023Q4D) Sample Duplicate (DUP)
1205538525	639969003(MW-FGD-20AR-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.

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. Samples 639969001 (MW-FGD-18-2023Q4), 639969002 (MW-FGD-19D-2023Q4), 639969003 (MW-FGD-20AR-2023Q4), 639969004 (MW-FGD-23-2023Q4), 639969005

(MW-FGD-24-2023Q4) and 639969007 (DU-WMS-FGD-23401) were diluted to ensure that the analyte concentrations were within the linear calibration range of the instrument.

Analyte	639969					
	001	**002**	**003**	**004**	**005**	**007**
Boron	50X	50X	50X	200X	200X	200X
Calcium	50X	50X	50X	200X	200X	200X

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: 639969 GEL Work Order: 639969

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
N/A RPD or %Recovery limits do not apply.
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: 18 OCT 2023 **Title: Analyst II/Team Leader**

Sample Data Summary

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 639969 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 639969001 **LEVEL:** Low **DATE COLLECTED:** 03-OCT-23

CLIENT ID: MW-FGD-18-2023Q4 **%SOLIDS:** 0 **DATE RECEIVED:** 05-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	5470	ug/L		200	750	750	50	MS	PRB	10/16/23 15:31	231016-1	2504262
7440-70-2	Calcium	334000	ug/L		1500	5000	5000	50	MS	PRB	10/16/23 15:31	231016-1	2504262

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2504262	2504261	EPA 200.2	50	mL	50	mL	10/06/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 639969 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 639969002 **LEVEL:** Low **DATE COLLECTED:** 03-OCT-23

CLIENT ID: MW-FGD-19D-2023Q4 **%SOLIDS:** 0 **DATE RECEIVED:** 05-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	2280	ug/L		200	750	750	50	MS	PRB	10/16/23 15:33	231016-1	2504262
7440-70-2	Calcium	168000	ug/L		1500	5000	5000	50	MS	PRB	10/16/23 15:33	231016-1	2504262

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2504262	2504261	EPA 200.2	50	mL	50	mL	10/06/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 639969 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 639969003 **LEVEL:** Low **DATE COLLECTED:** 03-OCT-23

CLIENT ID: MW-FGD-20AR-2023Q4 **%SOLIDS:** 0 **DATE RECEIVED:** 05-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	3950	ug/L		200	750	750	50	MS	PRB	10/16/23 15:35	231016-1	2504262
7440-70-2	Calcium	328000	ug/L		1500	5000	5000	50	MS	PRB	10/16/23 15:35	231016-1	2504262

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2504262	2504261	EPA 200.2	50	mL	50	mL	10/06/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 639969 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 639969004 **LEVEL:** Low **DATE COLLECTED:** 03-OCT-23

CLIENT ID: MW-FGD-23-2023Q4 **%SOLIDS:** 0 **DATE RECEIVED:** 05-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	23500	ug/L		800	3000	3000	200	MS	PRB	10/16/23 15:48	231016-1	2504262
7440-70-2	Calcium	1630000	ug/L		6000	20000	20000	200	MS	PRB	10/16/23 15:48	231016-1	2504262

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2504262	2504261	EPA 200.2	50	mL	50	mL	10/06/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 639969 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 639969005 **LEVEL:** Low **DATE COLLECTED:** 03-OCT-23

CLIENT ID: MW-FGD-24-2023Q4 **%SOLIDS:** 0 **DATE RECEIVED:** 05-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	24400	ug/L		800	3000	3000	200	MS	PRB	10/16/23 15:50	231016-1	2504262
7440-70-2	Calcium	1760000	ug/L		6000	20000	20000	200	MS	PRB	10/16/23 15:50	231016-1	2504262

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2504262	2504261	EPA 200.2	50	mL	50	mL	10/06/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 639969 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 639969006 **LEVEL:** Low **DATE COLLECTED:** 03-OCT-23

CLIENT ID: FBLK-WMS-FGD-23401 **%SOLIDS:** 0 **DATE RECEIVED:** 05-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	10/16/23 15:52	231016-1	2504262
7440-70-2	Calcium	30.0	ug/L	U	30.0	100	100	1	MS	PRB	10/16/23 15:52	231016-1	2504262

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2504262	2504261	EPA 200.2	50	mL	50	mL	10/06/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 639969 **CONTRACT:** DMNN00101 **METHOD TYPE:** EPA

SAMPLE ID: 639969007 **LEVEL:** Low **DATE COLLECTED:** 03-OCT-23

CLIENT ID: DU-WMS-FGD-23401 **%SOLIDS:** 0 **DATE RECEIVED:** 05-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	24200	ug/L		800	3000	3000	200	MS	PRB	10/16/23 15:57	231016-1	2504262
7440-70-2	Calcium	1740000	ug/L		6000	20000	20000	200	MS	PRB	10/16/23 15:57	231016-1	2504262

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
2504262	2504261	EPA 200.2	50	mL	50	mL	10/06/23	JD2

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

Quality Control Summary

METALS
-2a-
Initial and Continuing Calibration Verification

SDG No: 639969

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	97.6	ug/L	100	ug/L	97.6	90.0 - 110.0	MS	16-OCT-23 15:07	231016-1
	Calcium	5060	ug/L	5000	ug/L	101.2	90.0 - 110.0	MS	16-OCT-23 15:07	231016-1
CCV01										
	Boron	97.7	ug/L	100	ug/L	97.7	90.0 - 110.0	MS	16-OCT-23 15:17	231016-1
	Calcium	5100	ug/L	5000	ug/L	102.1	90.0 - 110.0	MS	16-OCT-23 15:17	231016-1
CCV02										
	Boron	99.9	ug/L	100	ug/L	99.9	90.0 - 110.0	MS	16-OCT-23 15:23	231016-1
	Calcium	5110	ug/L	5000	ug/L	102.3	90.0 - 110.0	MS	16-OCT-23 15:23	231016-1
CCV03										
	Boron	98.2	ug/L	100	ug/L	98.2	90.0 - 110.0	MS	16-OCT-23 15:44	231016-1
	Calcium	5110	ug/L	5000	ug/L	102.1	90.0 - 110.0	MS	16-OCT-23 15:44	231016-1
CCV04										
	Boron	97	ug/L	100	ug/L	97	90.0 - 110.0	MS	16-OCT-23 16:05	231016-1
	Calcium	5070	ug/L	5000	ug/L	101.4	90.0 - 110.0	MS	16-OCT-23 16:05	231016-1

***Analytical Methods:**

MS EPA 200.8 SC_NPDES

EPA

METALS
-2b-
CRDL Standard for ICP & ICPMS

SDG No: 639969

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	96.2	70.0 - 130.0	MS	16-OCT-23 15:11	231016-1
	Calcium	233	ug/L	200	ug/L	116.5	70.0 - 130.0	MS	16-OCT-23 15:11	231016-1
CRDL02										
	Boron	12.1	ug/L	15	ug/L	80.8	70.0 - 130.0	MS	16-OCT-23 15:59	231016-1
	Calcium	236	ug/L	200	ug/L	118	70.0 - 130.0	MS	16-OCT-23 15:59	231016-1

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

Metals
-3a-
Initial and Continuing Calibration Blank Summary

SDG No.: 639969

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	16-OCT-23 15:09	231016-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	16-OCT-23 15:09	231016-1
CCB01										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	16-OCT-23 15:19	231016-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	16-OCT-23 15:19	231016-1
CCB02										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	16-OCT-23 15:25	231016-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	16-OCT-23 15:25	231016-1
CCB03										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	16-OCT-23 15:46	231016-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	16-OCT-23 15:46	231016-1
CCB04										
	Boron	4.0	+/-7.5	U	4.0	15.0	LIQ	MS	16-OCT-23 16:07	231016-1
	Calcium	30.0	+/-50	U	30.0	100	LIQ	MS	16-OCT-23 16:07	231016-1

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-3b-
PREPARATION BLANK SUMMARY

SDG NO. 639969
Contract: DMNN00101
Matrix: GW

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1205538522								
	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: 639969

Contract: DMNN00101 **Lab Code:** GEL

Instrument: ICPMS15

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	Analysis Date/Time	Run Number
ICSA01									
	Boron	1.58	ug/L					16-OCT-23 15:13	231016-1
	Calcium	95100	ug/L	100000	ug/L	95.1	80.0 - 120.0	16-OCT-23 15:13	231016-1
ICSAB01									
	Boron	20.7	ug/L	20	ug/L	104	80.0 - 120.0	16-OCT-23 15:15	231016-1
	Calcium	95100	ug/L	100000	ug/L	95.1	80.0 - 120.0	16-OCT-23 15:15	231016-1
ICSA02									
	Boron	0.339	ug/L					16-OCT-23 16:01	231016-1
	Calcium	95300	ug/L	100000	ug/L	95.3	80.0 - 120.0	16-OCT-23 16:01	231016-1
ICSAB02									
	Boron	19.4	ug/L	20	ug/L	97	80.0 - 120.0	16-OCT-23 16:03	231016-1
	Calcium	95100	ug/L	100000	ug/L	95.2	80.0 - 120.0	16-OCT-23 16:03	231016-1

METALS
-5a-

Matrix Spike Summary

SDG NO. 639969 **Client ID:** MW-FGD-20AR-2023Q4S

Contract: DMNN00101 **Level:** Low

Matrix: GROUND WATER **% Solids:**

Sample ID: 639969003 **Spike ID:** 1205538525

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Boron	ug/L		4020		3950		100	71.5	N/A	MS
Calcium	ug/L		328000		328000		2000	-23.6	N/A	MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

Metals
-6-
Duplicate Sample Summary

SDG No.: 639969 **Lab Code:** GEL

Contract: DMNN00101 **Client ID:** MW-FGD-20AR-2023Q4D

Matrix: GROUND WATER **Level:** Low

Sample ID: 639969003 **Duplicate ID:** 1205538524 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Boron	ug/L	+/-20%	3950		3980		.686		MS
Calcium	ug/L	+/-20%	328000		318000		3.09		MS

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

METALS
-7-
Laboratory Control Sample Summary

SDG NO. 639969

Contract: DMNN00101

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1205538523								
	Calcium	ug/L	2000	2120		106	85-115	MS
	Boron	ug/L	100	99.1		99.1	85-115	MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-9-
Serial Dilution Sample Summary

SDG NO. 639969 **Client ID:** MW-FGD-20AR-2023Q4L

Contract: DMNN00101

Matrix: LIQUID **Level:** Low

Sample ID: 639969003 **Serial Dilution ID:** 1205538526

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Boron	79.1		72.7	B	8.049			MS
Calcium	6560		7080		7.91		10	MS

***Analytical Methods:**

MS **EPA 200.8 SC_NPDES**

METALS
-13-
SAMPLE PREPARATION SUMMARY

SDG No: 639969 **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	2504261						
1205538522	MB for batch 2504261	MB	G	06-OCT-23	50mL	50mL	
1205538523	LCS for batch 2504261	LCS	G	06-OCT-23	50mL	50mL	
1205538525	MW-FGD-20AR-2023Q4S	MS	G	06-OCT-23	50mL	50mL	
1205538524	MW-FGD-20AR-2023Q4D	DUP	G	06-OCT-23	50mL	50mL	
639969001	MW-FGD-18-2023Q4	SAMPLE	G	06-OCT-23	50mL	50mL	
639969002	MW-FGD-19D-2023Q4	SAMPLE	G	06-OCT-23	50mL	50mL	
639969003	MW-FGD-20AR-2023Q4	SAMPLE	G	06-OCT-23	50mL	50mL	
639969004	MW-FGD-23-2023Q4	SAMPLE	G	06-OCT-23	50mL	50mL	
639969005	MW-FGD-24-2023Q4	SAMPLE	G	06-OCT-23	50mL	50mL	
639969006	FBLK-WMS-FGD-23401	SAMPLE	W	06-OCT-23	50mL	50mL	
639969007	DU-WMS-FGD-23401	SAMPLE	G	06-OCT-23	50mL	50mL	

EPA

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
Dominion Energy
SDG #: 639969

Product: **Ion Chromatography**
Analytical Method: EPA 300.0
Analytical Procedure: GL-GC-E-086 REV# 33
Analytical Batches: 2504243 and 2504593

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

GEL Sample ID#	Client Sample Identification
639969001	MW-FGD-18-2023Q4
639969002	MW-FGD-19D-2023Q4
639969003	MW-FGD-20AR-2023Q4
639969004	MW-FGD-23-2023Q4
639969005	MW-FGD-24-2023Q4
639969006	FBLK-WMS-FGD-23401
639969007	DU-WMS-FGD-23401
1205538473	Method Blank (MB)
1205538474	Laboratory Control Sample (LCS)
1205538475	639967012(NonSDG) Post Spike (PS)
1205538476	639967013(NonSDG) Sample Duplicate (DUP)
1205538477	639967013(NonSDG) Post Spike (PS)
1205538483	639967012(NonSDG) Sample Duplicate (DUP)
1205539079	Method Blank (MB)
1205539080	Laboratory Control Sample (LCS)
1205539088	639969003(MW-FGD-20AR-2023Q4) Sample Duplicate (DUP)
1205539090	639969003(MW-FGD-20AR-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	1205538475 (Non SDG 639967012PS)	114* (90%-110%)
	1205538477 (Non SDG 639967013PS)	111* (90%-110%)
	1205539090 (MW-FGD-20AR-2023Q4PS)	115* (90%-110%)

Technical Information

Sample Dilutions
The following samples 639969001 (MW-FGD-18-2023Q4), 639969002 (MW-FGD-19D-2023Q4), 1205539088 (MW-FGD-20AR-2023Q4DUP), 1205539090 (MW-FGD-20AR-2023Q4PS), 639969003 (MW-FGD-20AR-2023Q4), 639969004 (MW-FGD-23-2023Q4), 639969005 (MW-FGD-24-2023Q4) and 639969007 (DU-WMS-FGD-23401) were diluted because target analyte concentrations exceeded the calibration range. Samples 639969001 (MW-FGD-18-2023Q4), 639969002 (MW-FGD-19D-2023Q4), 639969004 (MW-FGD-23-2023Q4), 639969005 (MW-FGD-24-2023Q4) and 639969007 (DU-WMS-FGD-23401) were diluted based on historical data. Samples 639969004 (MW-FGD-23-2023Q4), 639969005 (MW-FGD-24-2023Q4) and 639969007 (DU-WMS-FGD-23401) were diluted to minimize matrix effects on instrument performance. 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	639969					
	001	002	003	004	005	007
Chloride	400X	200X	100X	1000X	1000X	1000X
Fluoride	2X	2X	1X	5X	5X	5X
Sulfate	20X	10X	100X	20X	1000X	1000X

Sample Re-analysis
Sample 639969006 (FBLK-WMS-FGD-23401) was re-analyzed due to (its) proximity to an overrange sample. The results from the reanalysis are reported.

Miscellaneous Information

Manual Integrations
Samples 639969004 (MW-FGD-23-2023Q4), 639969005 (MW-FGD-24-2023Q4) and 639969007 (DU-WMS-FGD-23401) were manually integrated to correctly position the baseline as set in the calibration standards.

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

Product: **Solids, Total Dissolved**
Analytical Method: SM 2540C
Analytical Procedure: GL-GC-E-001 REV# 21
Analytical Batch: 2504466

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

GEL Sample ID#	Client Sample Identification
639969001	MW-FGD-18-2023Q4
639969002	MW-FGD-19D-2023Q4
639969003	MW-FGD-20AR-2023Q4
639969004	MW-FGD-23-2023Q4
639969005	MW-FGD-24-2023Q4
639969006	FBLK-WMS-FGD-23401
639969007	DU-WMS-FGD-23401
1205538844	Method Blank (MB)
1205538845	Laboratory Control Sample (LCS)
1205538846	639967013(NonSDG) Sample Duplicate (DUP)
1205538847	639969003(MW-FGD-20AR-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.

Quality Control (QC) Information

Consecutive Weight Checks
In order to meet consecutive weight check criteria, weight events must be within 0.0005g of each other. After initial weight checks failed this criteria, the analyst performed two additional weight events. After four weight events, the analyst was unable to get the samples to conform to the criteria. The failure to meet weigh back criteria is attributed to the matrix of the samples. 639969007 (DU-WMS-FGD-23401).

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

Analyte	Sample	Value
Total Dissolved Solids	1205538847 (MW-FGD-20AR-2023Q4DUP)	18.9* (0%-5%)

Miscellaneous Information

Additional Comments
A TDS meter was used to check the samples for interference prior to analysis. 1205538847 (MW-FGD-20AR-2023Q4DUP), 639969001 (MW-FGD-18-2023Q4), 639969002 (MW-FGD-19D-2023Q4),

639969003 (MW-FGD-20AR-2023Q4), 639969004 (MW-FGD-23-2023Q4), 639969005 (MW-FGD-24-2023Q4) and 639969007 (DU-WMS-FGD-23401). 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: 639969 GEL Work Order: 639969

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: 19 OCT 2023 **Title: Group Leader**

Sample Data Summary

GEL LABORATORIES LLC
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Certificate of Analysis

Report Date: October 19, 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-18-2023Q4	Project:	DMNN00101
Sample ID:	639969001	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	03-OCT-23 14:02		
Receive Date:	05-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		86.3	2.66	8.00	mg/L		20	LXA2	10/07/23	0419	2504243	1
Fluoride		0.670	0.0660	0.200	mg/L		2	LXA2	10/06/23	1259	2504243	2
Chloride		1550	26.8	80.0	mg/L		400	LXA2	10/07/23	0348	2504243	3
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		3420	23.8	100	mg/L			CH6	10/06/23	1447	2504466	4

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	EPA 300.0	
4	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 19, 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-19D-2023Q4	Project:	DMNN00101
Sample ID:	639969002	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	03-OCT-23 13:01		
Receive Date:	05-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		46.3	1.33	4.00	mg/L		10	LXA2	10/07/23	0521	2504243	1
Chloride		684	13.4	40.0	mg/L		200	LXA2	10/07/23	0450	2504243	2
Fluoride		0.612	0.0660	0.200	mg/L		2	LXA2	10/06/23	1330	2504243	3
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		1330	23.8	100	mg/L			CH6	10/06/23	1447	2504466	4

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	EPA 300.0	
4	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 19, 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-20AR-2023Q4	Project:	DMNN00101
Sample ID:	639969003	Client ID:	DMNN001
Matrix:	AQ		
Collect Date:	03-OCT-23 11:46		
Receive Date:	05-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		0.331	0.0330	0.100	mg/L		1	HXC1	10/06/23	2200	2504593	1
Chloride		671	6.70	20.0	mg/L		100	HXC1	10/09/23	1413	2504593	2
Sulfate		232	13.3	40.0	mg/L		100					
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		1390	23.8	100	mg/L			CH6	10/06/23	1447	2504466	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 19, 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-23-2023Q4	Project:	DMNN00101
Sample ID:	639969004	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	03-OCT-23 12:56		
Receive Date:	05-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		289	2.66	8.00	mg/L		20	HXC1	10/09/23	1616	2504593	1
Fluoride	J	0.379	0.165	0.500	mg/L		5	HXC1	10/06/23	2332	2504593	2
Chloride		3300	67.0	200	mg/L		1000	HXC1	10/09/23	1546	2504593	3
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		7290	23.8	100	mg/L			CH6	10/06/23	1447	2504466	4

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	EPA 300.0	
4	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 19, 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-24-2023Q4	Project:	DMNN00101
Sample ID:	639969005	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	03-OCT-23 11:50		
Receive Date:	05-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		3390	67.0	200	mg/L		1000	HXC1	10/09/23	1647	2504593	1
Sulfate		503	133	400	mg/L		1000					
Fluoride	J	0.440	0.165	0.500	mg/L		5	HXC1	10/07/23	0003	2504593	2
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		6560	23.8	100	mg/L			CH6	10/06/23	1447	2504466	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 19, 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-WMS-FGD-23401	Project:	DMNN00101
Sample ID:	639969006	Client ID:	DMNN001
Matrix:	AQ		
Collect Date:	03-OCT-23 14:00		
Receive Date:	05-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		0.126	0.0330	0.100	mg/L		1	HXC1	10/07/23	0034	2504593	1
Sulfate	U	ND	0.133	0.400	mg/L		1					
Chloride	U	ND	0.0670	0.200	mg/L		1	HXC1	10/09/23	1718	2504593	2
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids	U	ND	2.38	10.0	mg/L			CH6	10/06/23	1447	2504466	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 19, 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-WMS-FGD-23401	Project:	DMNN00101
Sample ID:	639969007	Client ID:	DMNN001
Matrix:	GW		
Collect Date:	03-OCT-23 12:00		
Receive Date:	05-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		3510	67.0	200	mg/L		1000	HXC1	10/09/23	1749	2504593	1
Sulfate		527	133	400	mg/L		1000					
Fluoride	J	0.439	0.165	0.500	mg/L		5	HXC1	10/07/23	0339	2504593	2
Solids Analysis												
SM2540C TDS "As Received"												
Total Dissolved Solids		6710	23.8	100	mg/L			CH6	10/06/23	1447	2504466	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

Quality Control Summary

QC Summary

Report Date: October 19, 2023

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

Contact: **Kelly Hicks**

Workorder: **639969**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 2504243										
QC1205538476 639967013 DUP										
Chloride		5.87		5.90	mg/L	0.486		(0%-20%)	LXA2	10/06/23 11:58
Fluoride		0.104		0.150	mg/L	36.4 ^		(+/-0.100)		
Sulfate		0.583		0.587	mg/L	0.753 ^		(+/-0.400)		
QC1205538483 639967012 DUP										
Chloride		9.25		9.26	mg/L	0.102		(0%-20%)		10/06/23 10:25
Fluoride		0.319		0.315	mg/L	1.14 ^		(+/-0.100)		
Sulfate		3.02		3.13	mg/L	3.65		(0%-20%)		
QC1205538474 LCS										
Chloride	5.00			4.56	mg/L		91.3	(90%-110%)		10/05/23 23:37
Fluoride	2.50			2.36	mg/L		94.3	(90%-110%)		
Sulfate	10.0			9.40	mg/L		94	(90%-110%)		
QC1205538473 MB										
Chloride			U	ND	mg/L					10/05/23 23:06
Fluoride			U	ND	mg/L					
Sulfate			U	ND	mg/L					
QC1205538475 639967012 PS										
Chloride	5.00	9.25		15.0	mg/L		114*	(90%-110%)		10/06/23 10:56

QC Summary

Workorder: **639969**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 2504243										
Fluoride	2.50	0.319		2.70	mg/L		95.2	(90%-110%)	LXA2	10/06/23 10:56
Sulfate	10.0	3.02		12.9	mg/L		98.6	(90%-110%)		
QC1205538477 639967013 PS										
Chloride	5.00	5.87		11.4	mg/L		111*	(90%-110%)		10/06/23 12:29
Fluoride	2.50	0.104		2.53	mg/L		97.2	(90%-110%)		
Sulfate	10.0	0.583		10.3	mg/L		97.5	(90%-110%)		
Batch 2504593										
QC1205539088 639969003 DUP										
Chloride		671		680	mg/L	1.4		(0%-20%)	HXC1	10/09/23 14:44
Fluoride		0.331		0.289	mg/L	13.4 ^		(+/-0.100)		10/06/23 22:31
Sulfate		232		230	mg/L	1.25		(0%-20%)		10/09/23 14:44
QC1205539080 LCS										
Chloride	5.00			4.67	mg/L		93.4	(90%-110%)		10/07/23 03:09
Fluoride	2.50			2.40	mg/L		96.1	(90%-110%)		
Sulfate	10.0			9.59	mg/L		95.9	(90%-110%)		
QC1205539079 MB										
Chloride			U	ND	mg/L					10/07/23 02:38
Fluoride			U	ND	mg/L					
Sulfate			U	ND	mg/L					

QC Summary

Workorder: **639969**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 2504593										
QC1205539090 639969003 PS										
Chloride	5.00	6.71		12.4	mg/L		115*	(90%-110%)	HXC1	10/09/23 15:15
Fluoride	2.50	0.331		2.62	mg/L		91.6	(90%-110%)		10/06/23 23:02
Sulfate	10.0	2.32		12.2	mg/L		98.5	(90%-110%)		10/09/23 15:15
Solids Analysis										
Batch 2504466										
QC1205538846 639967013 DUP										
Total Dissolved Solids	J	3.00	J	7.00	mg/L	80 ^		(+/-10.0)	CH6	10/06/23 14:47
QC1205538847 639969003 DUP										
Total Dissolved Solids		1390		1680	mg/L	18.9*		(0%-5%)		10/06/23 14:47
QC1205538845 LCS										
Total Dissolved Solids	300			303	mg/L		101	(95%-105%)		10/06/23 14:47
QC1205538844 MB										
Total Dissolved Solids			U	ND	mg/L					10/06/23 14:47

Notes:

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- H Analytical holding time was exceeded
- < Result is less than value reported
- > Result is greater than value reported
- h Preparation or preservation holding time was exceeded
- R Sample results are rejected
- Z Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
- d 5-day BOD--The 2:1 depletion requirement was not met for this sample
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

QC Summary

Workorder: **639969**

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

N/A RPD or %Recovery limits do not apply.

ND Analyte concentration is not detected above the detection limit

NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range

Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.

N1 See case narrative

R Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.

B The target analyte was detected in the associated blank.

e 5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes

J See case narrative for an explanation

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

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

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

Williams Power Station Groundwater Sampling
Samples Collected between: 10/3/2023 and 10/4/2023

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:

639969

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-18-2023Q4	MW-FGD-18	N	EPA 300.0	Fluoride	N		U	BF	0.670	0.670		mg/L
MW-FGD-19D-2023Q4	MW-FGD-19D	N	EPA 300.0	Fluoride	N		U	BF	0.612	0.612		mg/L
MW-FGD-20AR-2023Q4	MW-FGD-20AR	N	EPA 300.0	Fluoride	N		U	BF	0.331	0.331		mg/L
MW-FGD-23-2023Q4	MW-FGD-23	N	EPA 300.0	Fluoride	N		U	BF	0.379	0.500		mg/L
MW-FGD-24-2023Q4	MW-FGD-24	N	EPA 300.0	Fluoride	N		U	BF	0.440	0.440		mg/L
DU-WMS-FGD-23401	MW-FGD-24	FD	EPA 300.0	Fluoride	N		U	BF	0.439	0.500		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: Williams Generating Station
SDG: 639969

Lab Sample ID	639969001
Sys Sample Code	MW-FGD-18-2023Q4
Sample Name	MW-FGD-18-2023Q4
Sample Date	10/3/2023 2:02:00 PM
Location	WMS-MW-FGD-18 / MW-FGD-18
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	5470				200	200	750	Y	Yes	50	NA
	Calcium	7440-70-2	T	ug/L	334000				1500	1500	5000	Y	Yes	50	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	1550				26.8	26.8	80.0	Y	Yes	400	NA
	Fluoride	16984-48-8	N	mg/L		U	BF		0.670	0.670	0.670	N	Yes	2	NA
	Sulfate	14808-79-8	N	mg/L	86.3				2.66	2.66	8.00	Y	Yes	20	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	3420				23.8	23.8	100	Y	Yes	1	NA

Lab Sample ID	639969002
Sys Sample Code	MW-FGD-19D-2023Q4
Sample Name	MW-FGD-19D-2023Q4
Sample Date	10/3/2023 1:01:00 PM
Location	WMS-MW-FGD-19D / MW-FGD-19D
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	2280				200	200	750	Y	Yes	50	NA
	Calcium	7440-70-2	T	ug/L	168000				1500	1500	5000	Y	Yes	50	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	684				13.4	13.4	40.0	Y	Yes	200	NA
	Fluoride	16984-48-8	N	mg/L		U	BF		0.612	0.612	0.612	N	Yes	2	NA
	Sulfate	14808-79-8	N	mg/L	46.3				1.33	1.33	4.00	Y	Yes	10	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	1330				23.8	23.8	100	Y	Yes	1	NA

Lab Sample ID	639969003
Sys Sample Code	MW-FGD-20AR-2023Q4
Sample Name	MW-FGD-20AR-2023Q4
Sample Date	10/3/2023 11:46:00 AM
Location	WMS-MW-FGD-20AR / MW-FGD-20AR
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	3950				200	200	750	Y	Yes	50	NA
	Calcium	7440-70-2	T	ug/L	328000				1500	1500	5000	Y	Yes	50	NA
EPA 300.0	Fluoride	16984-48-8	N	mg/L		U	BF		0.331	0.331	0.331	N	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	671				6.70	6.70	20.0	Y	Yes	100	NA
	Sulfate	14808-79-8	N	mg/L	232				13.3	13.3	40.0	Y	Yes	100	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	1390				23.8	23.8	100	Y	Yes	1	NA

Lab Sample ID	639969004
Sys Sample Code	MW-FGD-23-2023Q4
Sample Name	MW-FGD-23-2023Q4
Sample Date	10/3/2023 12:56:00 PM
Location	WMS-MW-FGD-23 / MW-FGD-23
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	23500				800	800	3000	Y	Yes	200	NA
	Calcium	7440-70-2	T	ug/L	1630000				6000	6000	20000	Y	Yes	200	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	3300				67.0	67.0	200	Y	Yes	100	NA
	Fluoride	16984-48-8	N	mg/L		U	BF		0.379	0.379	0.500	N	Yes	5	NA
	Sulfate	14808-79-8	N	mg/L	289				2.66	2.66	8.00	Y	Yes	20	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	7290				23.8	23.8	100	Y	Yes	1	NA

Lab Sample ID	639969005
Sys Sample Code	MW-FGD-24-2023Q4
Sample Name	MW-FGD-24-2023Q4
Sample Date	10/3/2023 11:50:00 AM
Location	WMS-MW-FGD-24 / MW-FGD-24
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	24400				800	800	3000	Y	Yes	200	NA
	Calcium	7440-70-2	T	ug/L	1760000				6000	6000	20000	Y	Yes	200	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	3390				67.0	67.0	200	Y	Yes	100	NA
	Fluoride	16984-48-8	N	mg/L		U	BF		0.440	0.440	0.440	N	Yes	5	NA
	Sulfate	14808-79-8	N	mg/L	503				133	133	400	Y	Yes	100	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	6560				23.8	23.8	100	Y	Yes	1	NA

Lab Sample ID	639969006
Sys Sample Code	FBLK-WMS-FGD-23401
Sample Name	FBLK-WMS-FGD-23401
Sample Date	10/3/2023 2:00:00 PM
Location	WMS-FB / Field Blank
Sample Type	FB
Matrix	AQ
Parent Sample	

Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Uncertainty	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
EPA 200.8	Boron	7440-42-8	T	ug/L		U			4.00	4.00	15.0	N	Yes	1	NA
	Calcium	7440-70-2	T	ug/L		U			30.0	30.0	100	N	Yes	1	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L		U			0.0670	0.0670	0.200	N	Yes	1	NA
	Fluoride	16984-48-8	N	mg/L	0.126				0.0330	0.0330	0.100	Y	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	639969007
Sys Sample Code	DU-WMS-FGD-23401
Sample Name	DU-WMS-FGD-23401
Sample Date	10/3/2023 12:00:00 PM
Location	WMS-MW-FGD-24 / MW-FGD-24
Sample Type	FD
Matrix	GW
Parent Sample	MW-FGD-24-2023Q4

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	24200				800	800	3000	Y	Yes	200	NA
	Calcium	7440-70-2	T	ug/L	1740000				6000	6000	20000	Y	Yes	200	NA
EPA 300.0	Chloride	16887-00-6	N	mg/L	3510				67.0	67.0	200	Y	Yes	100	NA
	Fluoride	16984-48-8	N	mg/L		U	BF		0.439	0.439	0.500	N	Yes	5	NA
	Sulfate	14808-79-8	N	mg/L	527				133	133	400	Y	Yes	100	NA
SM 2540C	Total Dissolved Solids	TDS	N	mg/L	6710				23.8	23.8	100	Y	Yes	1	NA

Appendix E
First Semiannual Detection Monitoring Program Statistical Evaluation

DOMINION ENERGY SOUTH CAROLINA

WILLIAMS STATION NEW FGD POND

SEMIANNUAL DETECTION MONITORING

BERKELEY COUNTY, SOUTH CAROLINA

CCR GROUNDWATER DETECTION MONITORING STATISTICAL ANALYSIS REPORT

For the

March 2023 Sampling Event

June 16, 2023

Joyce Peterson, P.E.
Senior Environmental Engineer

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

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Statistical Analysis Report

Groundwater Sampling

TRC Environmental Corporation (TRC) is providing this Statistically Significant Increases (SSI) notification for the Williams Station New FGD Pond for the third semiannual detection monitoring event. Samples were collected on March 19th – 21st, 2023. The final laboratory analytical data packages for the event were received on October 5th, 2022, and the data validation report was received on October 7th, 2022. This report addresses results from Detection Monitoring wells MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR. Background wells for the New FGD Pond include MW-FGD-16 and MW-FGD-21.

Statistical Analysis

Statistically Significant Level (SSL) exceedances above background concentrations include the following:

- MW-FGD-17: boron, calcium, chloride, pH, and total dissolved solids (TDS)
- MW-FGD-18: boron, calcium, chloride, pH, and TDS
- MW-FGD-19D: boron, calcium, chloride, pH, and TDS
- MW-FGD-20AR: boron, calcium, chloride, pH, sulfate, and TDS

An Alternative Source Demonstration (ASD) should be prepared for the potential SSIs.

The New FGD Pond opened in April 2021 in accordance with the CCR Rule requirements. TRC conducted statistical evaluation of eight baseline groundwater sampling events that were collected from the New FGD Pond monitoring wells between April 28, 2021, and September 23, 2021. The samples were analyzed for the CCR Rule Appendix III and Appendix IV parameters. The data from the baseline events were statically evaluated to determine the background threshold values (BTVs) for Appendix III constituents and groundwater protection standards (GWPS) for Appendix IV constituents. A *Baseline Statistical Evaluation Report* presenting the results of the baseline evaluation was prepared by TRC dated January 2022 and included the baseline evaluation in the 2021 Annual Report.

Table 1 presents BTVs calculated based on the background data. **Table 2** presents the data set for the third detection monitoring event and highlights results that are potential SSIs.

Table 1
Background Threshold Values

Table 1 Background Threshold Values

CONSTITUENT	PERCENT DETECTED	DISTRIBUTION	TREND	BACKGROUND THRESHOLD VALUE	BASIS
Boron (mg/L)	100	Normal	None	0.0667	95% UPL (k = 20)
Calcium (mg/L)	100	Nonnormal	None	41.7	95% USL
Chloride (mg/L)	100	Nonnormal	None	33.3	95% USL
Fluoride (mg/L)	100	Normal	None	0.646	95% UPL (k = 20)
pH (s.u.)	100	Nonnormal	None	4.67 - 5.82	Min - Max result
Sulfate (mg/L	100	Nonnormal	None	89.2	95% USL
TDS (mg/L)	100	Normal	None	329	95% UPL (k = 20)

mg/L = milligrams per liter.
pH expressed in standard units (s.u.).
UPL = upper prediction limit.
USL = upper statistical limit.

Table 2
March 2023 Downgradient Results and Potential SSIs

Table 2 March 2023 Downgradient Results and Potential SSIs

WELL	CONSTITUENT / BTV / RESULT (mg/L except as noted)[1]						
	BORON	CALCIUM	CHLORIDE	FLUORIDE	pH	SULFATE	TDS
	0.0667	41.7	33.3	0.646	4.67 - 5.82	89.2	329
BACKGROUND WELLS							
MW-FGD-16	0.0374	15.2	28.4	0.193	5.09	57.4	184
MW-FGD-21	0.020	45.6	3.27	<0.033	5.82	85.0	238
DOWNGRADIENT WELLS							
MW-FGD-17	0.146	167	110	0.526	6.46	48.6	896
MW-FGD-18	3.260	236	1,410	0.611	6.72	60.2	2,560
MW-FGD-19D	2.08	134	645	0.453	6.79	38.1	1,060
MW-FGD-20AR	3.41	280	563	0.0906 J	6.53	160	1,280

Shaded cells indicate an SSI.
[1] pH expressed in standard units (s.u.).
J Estimated concentration.

Appendix F
Second Semiannual Detection Monitoring Program Statistical Evaluation

DOMINION ENERGY SOUTH CAROLINA

WILLIAMS STATION NEW FLUE GAS DESULFURIZATION POND

SEMIANNUAL DETECTION MONITORING

BERKELEY COUNTY, SOUTH CAROLINA

CCR GROUNDWATER DETECTION MONITORING STATISTICAL ANALYSIS REPORT

For the

October 2023 Sampling Event

January 5, 2024

Joyce Peterson, P.E.
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Statistical Analysis Report

Background

In January 2023, Dominion Energy South Carolina (DESC) installed three new groundwater monitoring wells downgradient along the western and southern edge of the Williams Station New Flue Gas Desulfurization (FGD) Pond. The new monitoring wells were sampled from January 2023 through August 2023, to collect eight rounds of background monitoring data. To ensure the groundwater monitoring well network meets the requirements of 40 CFR 257.91, the monitoring well network was revised and certified in September 2023 (TRC, 2023a) to include the following monitoring wells:

- Background monitoring wells – MW-FGD-23 and MW-FGD-24.
- Downgradient monitoring wells – MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR.

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 Williams Station New FGD Pond for the 2nd Semiannual 2023 Detection Monitoring Program event. Samples were collected on October 3, 2023. The final laboratory analytical data package for the event was received on October 18, 2023, and the data validation report was received on November 3, 2023.

Statistical Analysis

No Statistically Significant Increases (SSI) exceedances were noted for the Williams Station New FGD Pond for the 2nd Semiannual 2023 Detection Monitoring Program event.

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)	16	100	Normal	31,100	95% UPL, k=12
Calcium (µg/L)	16	100	Normal	2,380,000	95% UPL, k=12
Chloride (mg/L)	16	100	Normal	5,290	95% UPL, k=12
Fluoride (mg/L)	16	25	Normal	0.938	95% USL
pH (S.U.)	16	100	Normal	5.3 – 7.1	95% UPL, k=12
Sulfate (mg/L)	16	100	Normal	818	95% UPL, k=12
TDS (mg/L)	16	100	Normal	10,800	95% UPL, k=12

pH expressed in standard units (S.U.).
TDS = Total dissolved solids.
µg/L = micrograms per liter.
mg/L = milligrams per liter.
N/A = Not applicable.
UPL = Upper prediction limit.
USL = Upper statistical limit.
k = Number of future comparisons.

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)
	31,100	**2,380,000**	**5,290**	**0.938**	**5.3 – 7.1**	**818**	**10,800**
BACKGROUND WELLS							
MW-FGD-23	23,500	1,630,000	3,300	< 0.379	6.16	289	7,290
MW-FGD-24	24,400	1,760,000	3,390	< 0.440	5.87	503	6,560
DOWNGRADIENT WELLS							
MW-FGD-18	5,470	334,000	1,550	< 0.670	6.50	86.3	3,420
MW-FGD-19D	2,280	168,000	684	< 0.612	7.11	46.3	1,330
MW-FGD-20AR	3,950	328,000	671	< 0.331	6.78	232	1,390

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.

< Result less than the indicated detection limit.

Appendix A
Baseline Statistical Evaluation Report

DOMINION ENERGY SOUTH CAROLINA

WILLIAMS STATION NEW FLUE GAS DESULFURIZATION (FGD) POND

BERKELEY COUNTY, SOUTH CAROLINA

BASELINE STATISTICAL EVALUATION REPORT

For the

January - August 2023 Baseline Sampling Events

December 15, 2023

Joyce Peterson, P.E.
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Section 1
Background

Dominion Energy South Carolina (DESC) owns and operates the Williams Generating Station (Station) located near Goose Creek, in Berkely 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 2242 Bushy Park Road in Berkeley County, South Carolina (**Figure 1**). The Station is located approximately 6 miles northeast of Goose Creek, South Carolina. The Unit is located onsite approximately 2,000 feet north of the generating plant.

1.2 Site History

The facility began operations in 1973 and operates a single 633-mega-watt coal-fired unit. The Station operated both onsite and offsite ash ponds and landfills. The Station also operates a flue gas desulfurization (FGD) air quality control system that produces an FGD wastewater blowdown waste stream that is managed in an on-site FGD Pond. The original FGD Pond was closed in 2021 and reconstructed in the footprint of the original pond to meet the CCR Rule's seismic impact zone location and liner design criteria. A series of eight baseline groundwater samples were collected from the pre-existing groundwater monitoring network for the FGD Pond following reconstruction of the FGD Pond in 2021. The baseline statistical evaluation report (TRC, December 2021) established background threshold values for Appendix III parameters for use in the Detection Monitoring Program.

1.3 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 January 2023 through August 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-FGD-16 and MW-FGD-21.
- Downgradient monitoring wells – MW-FGD-17, MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR.

In January 2023, DESC installed three new groundwater monitoring wells (MW-FGD-22, MW-FGD-23, and MW-FGD-24) along the western and southern edge 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 – MW-FGD-23, and MW-FGD-24.
- Downgradient monitoring wells – MW-FGD-18, MW-FGD-19D, and MW-FGD-20AR.

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 20, 2023.

Table 1
Revised CCR Rule Groundwater Monitoring Well Network

LOCATION	RELATIVE LOCATION	WELL DIAMETER (IN.)	BOTTOM OF SCREEN (FT-BGS)	SCREEN LENGTH (FT)
MW-FGD-23	Upgradient	2	25.4	10
MW-FGD-24	Upgradient	2	25.2	10
MW-FGD-18	Downgradient	2	18	10
MW-FGD-19D	Downgradient	2	28	10
MW-FGD-20AR	Downgradient	2	20	10

Section 2
Baseline Statistical Evaluation

Groundwater samples were collected from the newly installed downgradient monitoring wells on a monthly basis from January through August 2023, for a total of eight baseline sampling events. The groundwater samples were submitted to GEL Laboratories, LLC in Charleston, South Carolina, for analysis of the CCR Rule Appendix III and Appendix IV constituents. Environmental Standards, Inc., conducted quality assurance reviews of the analytical results and managed the data in an EQuIS database. A summary table of the baseline sampling results is provided in **Appendix A**. **Table 2** lists the Appendix III and Appendix IV constituents.

Table 2
Groundwater Quality Monitoring Constituents

APPENDIX III CONSTITUENTS	APPENDIX IV CONSTITUENTS	
Boron	Antimony	Lead
Calcium	Arsenic	Lithium
Chloride	Barium	Mercury
Fluoride	Beryllium	Molybdenum
Field pH	Cadmium	Radium 226/228
Sulfate	Chromium	Selenium
Total Dissolved Solids (TDS)	Cobalt	Thallium
	Fluoride	

The following procedure was conducted to establish new background concentrations for detection monitoring of the Unit. Statistical calculations and evaluations were conducted using US EPA's ProUCL (v.5.2) Software. The evaluation procedures were conducted separately for Appendix III and Appendix IV constituents.

- The data for all wells were observed for detection frequency, potential outliers, and missing data.
- General statistical parameters were evaluated for Appendix III and IV (ProUCL outputs for these are provided in **Appendix B**).
- The Appendix III data for background wells MW-FGD-23 and MW-FGD-24 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 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=12 future comparisons (three downgradient monitoring wells, four subsequent detection monitoring events) when the data set meets the requirements for parametric statistical evaluation. In accordance with the Statistical Evaluation Plan, statistical calculations for data sets with censored (nondetect) results are conducted as follows:

- For data sets with between 50 and 100 percent detected concentrations, the Kaplan-Meier method is used for statistical calculations.
- For data sets with fewer than 50 percent detected concentrations, nonparametric statistical methods are employed.
- For data sets with 100 percent nondetect values in the background data set, the double quantification rule is employed. A downgradient detection above the practical quantification limit in two consecutive groundwater monitoring events is deemed to be an SSI for that constituent.

Selection of the background threshold value for a background data set with at least 50 percent detected concentrations is based on the following hierarchy:

- Normal
- Gamma
- Lognormal
- Nonnormal (nonparametric)
- When nonparametric statistics are necessary, the upper statistical limit (USL) is used to compensate in part for the lower statistical power of the nonparametric statistical methods.

2.1 Appendix III Results

Six of the Appendix III constituents had 100 percent detections for both monitoring wells; the background data sets had some nondetect results for fluoride. Q-Q plots were generated for the Appendix III constituents, and potential outlier values were observed for boron and calcium. The ProUCL outlier function was used to test whether the potential outlier values were statistically significant at the 1 percent level of significance. Based on the results, two outlier values were removed from both the boron and calcium background data sets before evaluating the background threshold value. The results of these tests are provided in **Appendix C**.

For calculation of background threshold values, the data sets for the two upgradient monitoring wells, MW-FGD-23 and MW-FGD-24 were combined. **Table 3** provides a summary of the statistical results for of the background data sets for Appendix III constituents. The ProUCL outputs are provided in **Appendix C**.

Table 3
Appendix III Data Set Details and Background Threshold Values

CONSTITUENT	PERCENT DETECTED	DISTRIBUTION	BACKGROUND THRESHOLD VALUE	BASIS
Boron (µg/L)	100	Normal	31,100	95% UPL, k=12
Calcium (µg/L)	100	Normal	2,380,000	95% UPL, k=12
Chloride (mg/L)	100	Normal	5,290	95% UPL, k=12
Fluoride (mg/L)	25	Normal	0.938	95% USL
pH (s.u.)	100	Normal	5.3 – 7.1	95% UPL, k=12
Sulfate (mg/L)	100	Normal	818	95% UPL, k=12
TDS (mg/L)	100	Normal	10,800	95% UPL, k=12

2.2 Appendix IV Results

Baseline sampling included the 15 constituents included in Appendix IV to the CCR rule. The Appendix IV results for the background wells in the new monitoring well network were used to estimate what GWPS would likely be applied in the event that the Unit were to transition to an assessment monitoring program. As set forth in the CCR rule, GWPS default to values established in the CCR rule unless background concentrations exceed those values. **Appendix A** provides a table of Appendix IV analytical results for both the upgradient and downgradient monitoring wells in the new monitoring well network.

Of the 15 Appendix IV constituents, three were not detected in background baseline samples and another five 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 the Appendix III constituents. The UPLs for

Appendix IV parameters were calculated for a single future event. The ProUCL outputs for the two background concentration evaluations 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	75	8.75	10	9.04	10
Barium	100	722	2000	657	2000
Beryllium	0	NA	4	NC	4
Cadmium	25	0.048 J	5	0.048	5
Chromium	13	2.57 J	100	2.57	100
Cobalt	75	0.458 J	6	0.409	6
Fluoride	25	938 J	4000	938	4000
Lead	0	NA	15	NC	15
Lithium	100	32.5	40	31	40
Mercury	19	0.111 J	2	0.111	2
Molybdenum	63	3.27	100	3.27	100
Radium 226/228	100	14.3	5.0	14.6	14.6
Selenium	100	38	50	38	50
Thallium	6	0.253 J	2	0.253	2

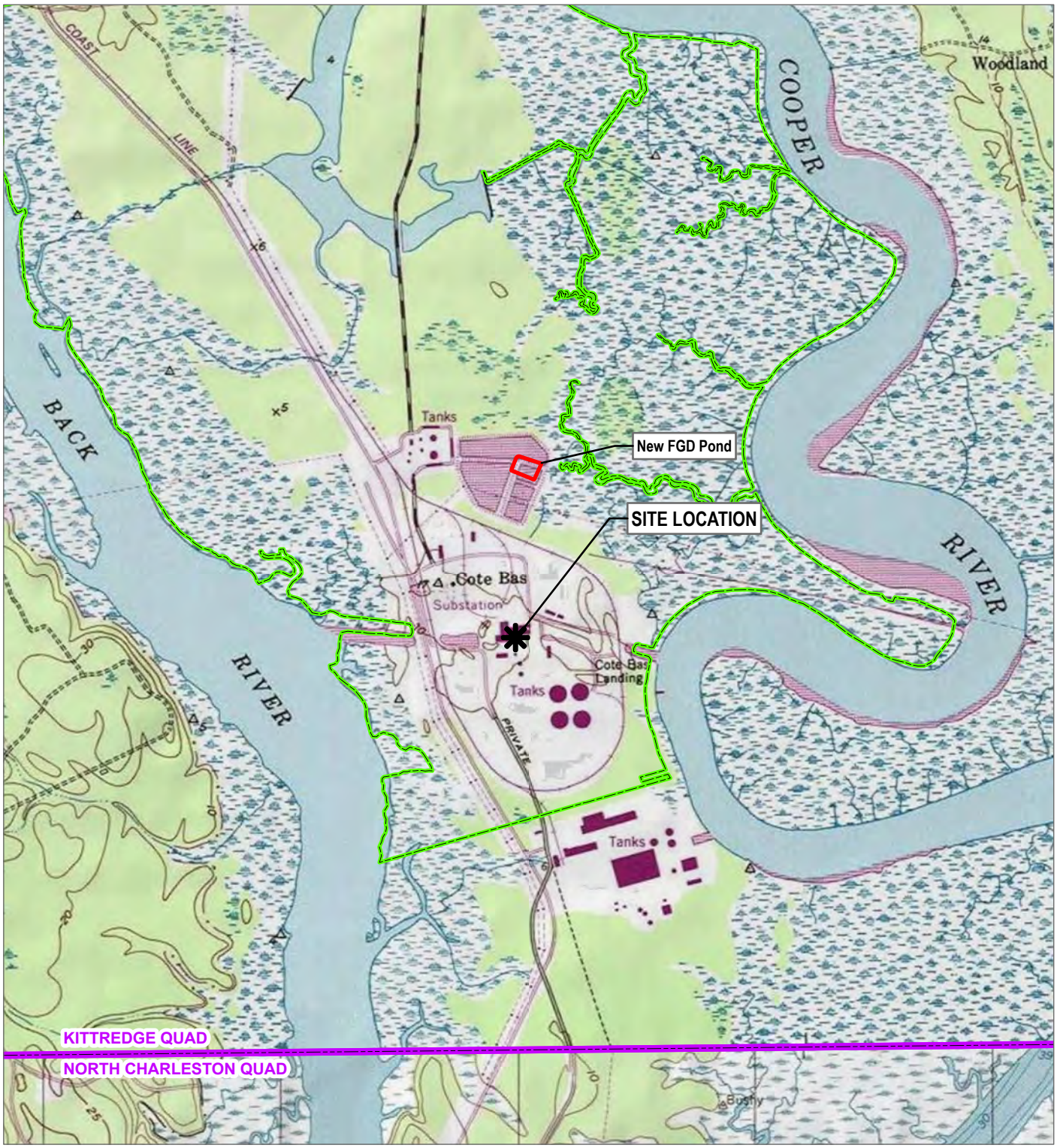
Radium 226/288 concentrations expressed in pCi/L (pico-Curies/liter)
Background and GWPS concentrations (except Radium 226/228) expressed in µg/L
J Quantitation is approximate due to limitations identified during data validation.
NA not analyzed
NC not calculated – 100% nondetect
[1] 40 CFR 257.95(h)

Section 3
References

TRC 2022. Technical Memorandum to DESC. *Evaluation of CCR Well Network – Williams Station New FGD Pond.* TRC, August 1, 2022

TRC 2023. New Flue Gas Desulfurization Wastewater Pond Groundwater Monitoring System Certification per 40 CFR 257.91(f), Williams Generating Station, Goose Creek, South Carolina. TRC, September 29, 2023.

Figures



LEGEND

- SITE LOCATION
- FGD POND BOUNDARY
- USGS 24K QUAD BOUNDARY
- PROPERTY BOUNDARY

BASE MAP: USGS TOPOGRAPHIC MAP SERVICE
DATA SOURCES: TRC

N

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

PROJECT: DOMINION ENERGY SOUTH CAROLINA
WILLIAMS STATION
2242 BUSHY PARK ROAD
GOOSE CREEK, SOUTH CAROLINA 29445

TITLE: SITE LOCATION MAP

DRAWN BY:	L. LILL	PROJ. NO.:	416559.0006.0000
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

COORDINATE SYSTEM: NAD 1983 STATEPLANE SOUTH CAROLINA FIPS 3900 FEET INTL MAP ROTATION: 0
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LEGEND

- CCR BACKGROUND MONITORING WELL
- CCR DOWNGRADIENT MONITORING WELL
- NPDES MONITORING WELL
- EVENT PIEZOMETER
- STAFF GAUGE
- NEW FGD POND BOUNDARY
- PROPERTY BOUNDARY

NOTES:

1. AERIAL IMAGE FROM ESRI WORLD IMAGERY DATED OCTOBER, 2022.

N

1:2,400
1" = 200'

0 100 200
FEET

PROJECT:
DESC WILLIAMS STATION
NEW FGD POND
GOOSE CREEK, SOUTH CAROLINA

TITLE:
CCR RULE COMPLIANCE
MONITORING WELL NETWORK

DRAWN BY:	L. LILL	PROJ. NO.:	416559.0006.0000
CHECKED BY:	J. YONTS		**FIGURE 2**
APPROVED BY:	R. MAYER		
DATE:	SEPTEMBER 2023		

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

FILE: 2023_Figures.aprx

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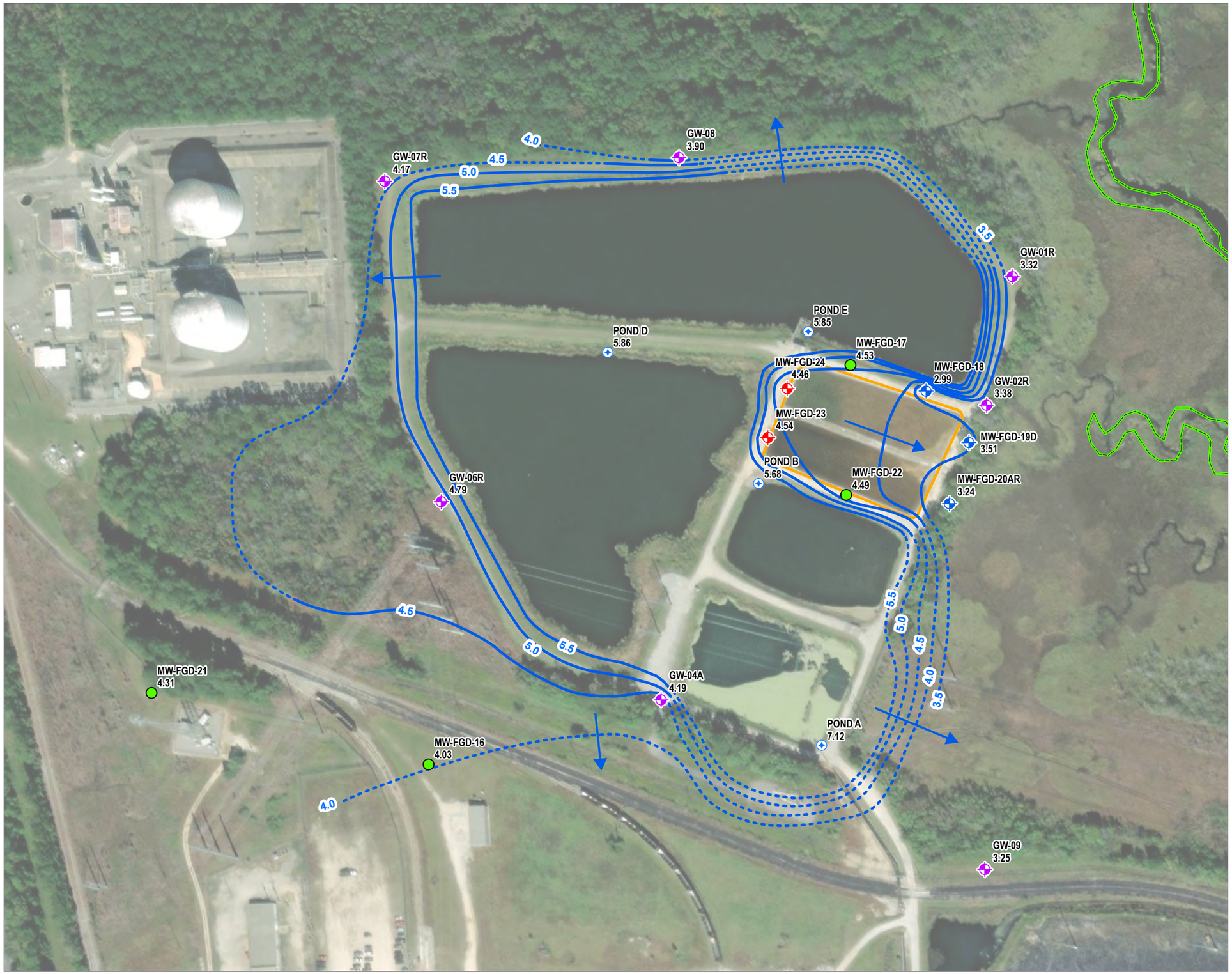

LEGEND

- CCR BACKGROUND MONITORING WELL
- CCR DOWNGRADIENT MONITORING WELL
- NPDES MONITORING WELL
- EVENT PIEZOMETER
- STAFF GAUGE
- NEW FGD POND BOUNDARY
- PROPERTY BOUNDARY
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- WATER TABLE ELEVATION IN FEET ABOVE MEAN SEA LEVEL (0.5' CONTOUR INTERVALS) - DASHED WHERE INFERRED
- 4.31 WATER ELEVATION (FT. MSL)

NOTES:

1. AERIAL IMAGE FROM ESRI WORLD IMAGERY DATED OCTOBER, 2022.

1:2,400
1" = 200'
0 100 200 FEET

PROJECT:	DESC WILLIAMS STATION NEW FGD POND GOOSE CREEK, SOUTH CAROLINA
TITLE:	GROUNDWATER POTENTIOMETRIC MAP - MARCH 20, 2023
DRAWN BY:	L. LILL
CHECKED BY:	J. YONTS
APPROVED BY:	R. MAYER
DATE:	SEPTEMBER 2023
PROJ. NO.:	416559.0006.0000
	FIGURE 3

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: LILL on 9/29/2023 11:15:07 PM - File Path: T:\1-PROJECTS\Dominion\South_Carolina\6_Williams_SC\Williams Station\2-APRX\2023_Figures\2023_Figures.aprx - Layout Name: Fig03_WMS_FGD_CCR_WT_20230320

Appendix A
Baseline Data

Baseline Data - Appendix III Constituents

WELL	DATE	BORON (µg/L)	CALCIUM (µg/L)	CHLORIDE (mg/L)	FLUORIDE (mg/L)	FIELD pH (S.U.)	SULFATE (mg/L)	TDS (mg/L)
New Background		**31,145**	**2,379,469**	**5,289**	**0.938**	**5.4 - 7.1**	**818**	**10,768**
BACKGROUND WELLS								
MW-FGD-23	1/17/2023	22,500	1,790,000	4,210	< 0.330	6.56	369	7,040
	2/15/2023	25,800	1,900,000	4,150	< 0.660	6.25	604	8,510
	3/21/2023	19,000	1,400,000	3,500	< 0.050	6.52	270	5,600
	4/13/2023	24,000	2,100,000	3,900	0.28	6.00	310	6,100
	5/18/2023	25,600	1,940,000	3,830	< 0.660	5.73	330	7,700
	6/15/2023	27,400	1,970,000	4,380	0.938 J	6.09	420	9,850
	7/20/2023	55,500	4,030,000	4,320	< 0.330	5.59	371	8,350
	8/21/2023	25,100	1,700,000	3,790 J+	0.220	5.80	312	7,330
MW-FGD-24	1/17/2023	23,600	1,680,000	4,460	< 0.660	6.54	719	6,680
	2/15/2023	22,700	1,620,000	3,370	< 0.660	6.29	563	6,930
	3/21/2023	25,000	1,600,000	3,400	< 0.13	6.50	390	5,800
	4/13/2023	19,000	1,400,000	2,700	< 0.13	6.35	360	5,500
	5/18/2023	21,600	1,600,000	3,170	< 0.660	6.26	445	5,470
	6/15/2023	22,600	1,580,000	3,660	< 0.660	6.21	543	6,830
	7/20/2023	44,400	3,190,000	3,290	< 0.330	6.20	498	6,080
	8/21/2023	22,800	1,710,000	3860 J+	0.218	6.07	428	7,120

Highlighted results were removed from the data sets as outliers.

Baseline Data - Appendix IV Constituents

WELL	DATE	ANTIMONY (µg/L)	ARSENIC (µg/L)	BARIUM (µg/L)	BERYLLIUM (µg/L)	CADMIUM (µg/L)	CHROMIUM (µg/L)	COBALT (µg/L)	FLUORIDE (mg/L)	LEAD (µg/L)	LITHIUM (µg/L)	MERCURY (µg/L)	MOLYBDENUM (µg/L)	RADIUM-226/228 (pCi/L)	SELENIUM (µg/L)	THALLIUM (µg/L)
BACKGROUND WELLS																
MW-FGD-23	1/17/2023	< 0.600	**6.92**	**722**	< 0.200	< 0.150	**2.57 J**	**0.343 J**	< 0.330	< 0.500	**19.7**	< 0.0670	**1.43 J**	**11.7**	**6.32**	< 0.125
	2/15/2023	< 0.600	**5.02**	**423**	< 0.200	< 0.0300	< 1.00	**0.180 J**	< 0.660	< 0.500	**27.2**	**0.0760 J**	**1.22**	**8.73**	**5.64**	< 0.125
	3/21/2023	< 2.5	< 6.3	**500**	< 0.75	< 0.30	< 6.3	< 1.3	< 0.050	< 1.3	**15.8**	< 0.091 UJ	< 2.5	**4.59 J**	**29**	< 0.75
	4/13/2023	< 2.5	< 6.3	**510**	< 0.75	< 0.30	< 6.3	< 6.3	**0.28**	< 1.3	**19.7**	< 0.091 UJ	< 13	**13.0 J**	**38**	< 0.75
	5/18/2023	< 0.600	**5.16**	**503**	< 0.200	**0.0480 J**	< 1.00	**0.259 J**	< 0.660	< 0.500	**26.9**	< 0.0670 R	**1.10**	**11.0**	**5.54**	< 0.125
	6/15/2023	< 0.600	**6.77**	**469**	< 0.200	**0.0390 J**	< 1.00	**0.281 J**	**0.938 J**	< 0.500	**27.6**	< 0.0670 UJ	< 0.979	**9.00 J**	**5.15**	< 0.125
	7/20/2023	< 0.600	**6.44**	**418**	< 0.200	< 0.0640	< 1.00	**0.261 J**	< 0.330	< 0.500	**32.5**	< 0.0670 R	< 1.15	**8.46**	**5.61**	**0.253 J**
	8/21/2023	< 0.600	**5.47**	**402**	< 0.200	< 0.0300	< 1.00	**0.258 J**	**0.220**	< 0.500	**26.7**	**0.111 J**	**1.25**	**6.56 J**	**4.66 J**	< 0.125
MW-FGD-24	1/17/2023	< 0.600	**8.05**	**686**	< 0.200	< 0.0300	< 1.00	**0.458 J**	< 0.660	< 0.500	**15.5**	< 0.0670	**2.32**	**14.3**	**5.02**	< 0.125
	2/15/2023	< 0.600	**7.77**	**469**	< 0.200	< 0.0300	< 1.00	**0.171 J**	< 0.660	< 0.500	**14.8**	**0.103 J**	**2.26**	**6.44 J**	**3.88 J**	< 0.125
	3/21/2023	< 2.5	< 6.3	**470**	< 0.75	< 0.30	< 6.3	< 1.3	< 0.13	< 1.3	**13.5**	< 0.091 UJ	< 2.5	**3.72 J**	**27**	< 0.75
	4/13/2023	< 2.5	< 6.3	**410**	< 0.75	< 0.30	< 6.3	< 6.3	< 0.13	< 1.3	**14.1**	< 0.091 UJ	< 13	**11.7 J**	**26**	< 0.75
	5/18/2023	< 0.600	**7.88**	**398**	< 0.200	< 0.0300	< 1.00	**0.283 J**	< 0.660	< 0.500	**15.2**	< 0.0670 R	**2.61**	**11.1 J**	**3.58 J**	< 0.125
	6/15/2023	< 0.600	**8.12**	**358**	< 0.200	0.0390 J	< 1.00	**0.317 J**	< 0.660	< 0.500	**18.0**	< 0.670 UJ	**2.82**	**10.7 J**	**3.74 J**	< 0.125
	7/20/2023	< 0.600	**8.75**	**383**	< 0.200	< 0.0550	**1.14 J**	**0.295 J**	< 0.330	< 0.500	**19.2**	< 0.0670 R	**3.27**	**6.40 J**	**4.27 J**	< 0.125
	8/21/2023	< 0.600	**8.39**	**350**	< 0.200	0.0320 J	< 1.00	**0.258 J**	**0.218**	< 0.500	**18.0**	< 0.0670 R	**2.78**	**6.76 J**	**3.40**	< 0.125

Appendix B
Summary of General Statistics

General Statistics on Uncensored Full Data (Appendix III Constituents)

Date/Time of Computation ProUCL 5.2 10/27/2023 3:01:59 PM

User Selected Options

From File WorkSheet_a.xls

Full Precision OFF

From File: WorkSheet_a.xls

General Statistics for Uncensored Data Sets

Variable	NumObs	# Missing	Minimum	Maximum	Mean	Geo-Mean	SD	SEM	MAD/0.675	Skewness	CV
Boron	16	0	19000	55500	26663	25528	9584	2396	2298	2.442	0.359
Calcium	16	0	1400000	4030000	1950625	1868156	693008	173252	237213	2.366	0.355
Chloride	16	0	2700	4460	3749	3718	491.8	123	600.4	-0.383	0.131
pH	16	0	5.59	6.56	6.185	6.178	0.294	0.0734	0.289	-0.596	0.0475
Sulfate	16	0	270	719	433.3	418.2	122.9	30.73	124.5	0.902	0.284
TDS	16	0	5470	9850	6931	6835	1226	306.5	1201	0.875	0.177

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	16	0	20300	22500	22575	23800	25650	25800	35900	47175	53835
Calcium	16	0	1490000	1600000	1600000	1705000	1947500	1970000	2645000	3400000	3904000
Chloride	16	0	3230	3370	3393	3810	4165	4210	4350	4400	4448
pH	16	0	5.765	6	6.053	6.23	6.388	6.5	6.53	6.545	6.557
Sulfate	16	0	311	330	352.5	405	509.3	543	583.5	632.8	701.8
TDS	16	0	5550	5800	6010	6880	7423	7700	8430	8845	9649

General Statistics on Uncensored Data (Appendix III Constituents)

Date/Time of Computation ProUCL 5.2 10/27/2023 3:02:44 PM

User Selected Options

From File WorkSheet_a.xls

Full Precision OFF

From File: WorkSheet_a.xls

General Statistics for Censored Datasets (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	16	0	4	12	75.00%	0.05	0.66	0.194	0.0457	0.214	1.1

General Statistics for Raw Dataset using Detected Data Only

Variable	NumObs	# Missing	Minimum	Maximum	Mean	Median	Var	SD	MAD/0.675	Skewness	CV
Fluoride	4	0	0.218	0.938	0.414	0.25	0.123	0.351	0.046	1.96	0.847

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	16	0	0.13	0.218	0.22	0.33	0.66	0.66	0.66	0.73	0.896

General Statistics on Uncensored Full Data (Appendix IV Constituents)

Date/Time of Computation	ProUCL 5.2 11/8/2023 5:06:11 PM
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Full Precision	OFF

From File: Williams_New_FGD_Pond_Data_Summary_Table_8_21_2023_JC_g.xls

General Statistics for Uncensored Data Sets

Variable	NumObs	# Missing	Minimum	Maximum	Mean	Geo-Mean	SD	SEM	MAD/0.675	Skewness	CV
Barium	16	0	350	722	466.9	457.3	105.3	26.33	75.61	1.486	0.226
Lithium	16	0	13.5	32.5	20.28	19.52	5.95	1.487	5.337	0.739	0.293
Radium-226/228	16	0	3.72	14.3	9.01	8.461	3.076	0.769	3.506	-0.0605	0.341
Selenium	16	0	3.4	38	11.05	7.383	11.59	2.898	1.883	1.445	1.049

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	16	0	370.5	398	401	446	500.8	503	598	695	716.6
Lithium	16	0	14.45	15.2	15.43	18.6	26.75	26.9	27.4	28.83	31.77
Radium-226/228	16	0	5.495	6.44	6.53	8.865	11.25	11.7	12.35	13.33	14.11
Selenium	16	0	3.66	3.88	4.173	5.345	11.24	26	28	31.25	36.65

General Statistics on Uncensored Data (Appendix IV Constituents)

Date/Time of Computation ProUCL 5.2 11/8/2023 5:09:46 PM

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Full Precision OFF

From File: Williams_New_FGD_Pond_Data_Summary_Table_8_21_2023_JC_g.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
Arsenic	16	0	12	4	25.00%	6.3	6.3	6.6	1.815	1.347	0.204
Cobalt	16	0	12	4	25.00%	1.3	6.3	0.28	0.00508	0.0712	0.254
Molybdenum	16	0	10	6	37.50%	0.979	13	1.856	0.609	0.781	0.421

General Statistics for Raw Data Sets using Detected Data Only

Variable	NumObs	# Missing	Minimum	Maximum	Mean	Median	Var	SD	MAD/0.675	Skewness	CV
Arsenic	12	0	5.02	8.75	7.062	7.345	1.699	1.304	1.245	-0.467	0.185
Cobalt	12	0	0.171	0.458	0.28	0.271	0.00554	0.0744	0.0274	0.94	0.265
Molybdenum	10	0	1.1	3.27	2.106	2.29	0.625	0.791	1.03	-0.0733	0.376

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
Arsenic	16	0	5.315	6.3	6.3	6.605	7.923	8.05	8.255	8.48	8.696
Cobalt	16	0	0.219	0.258	0.259	0.289	0.669	1.3	3.8	6.3	6.3
Molybdenum	16	0	1.125	1.22	1.243	2.41	2.79	2.82	8.135	13	13

Appendix C
Background Evaluation ProUCL Outputs

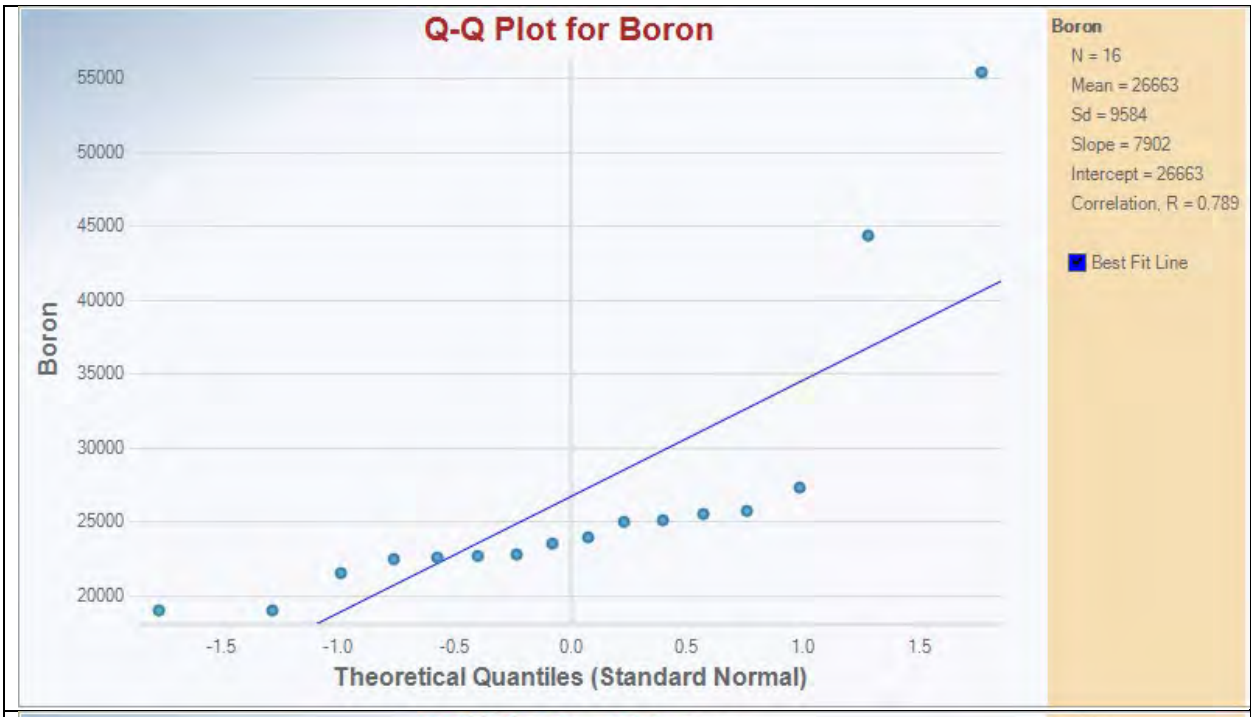
Appendix III Constituents

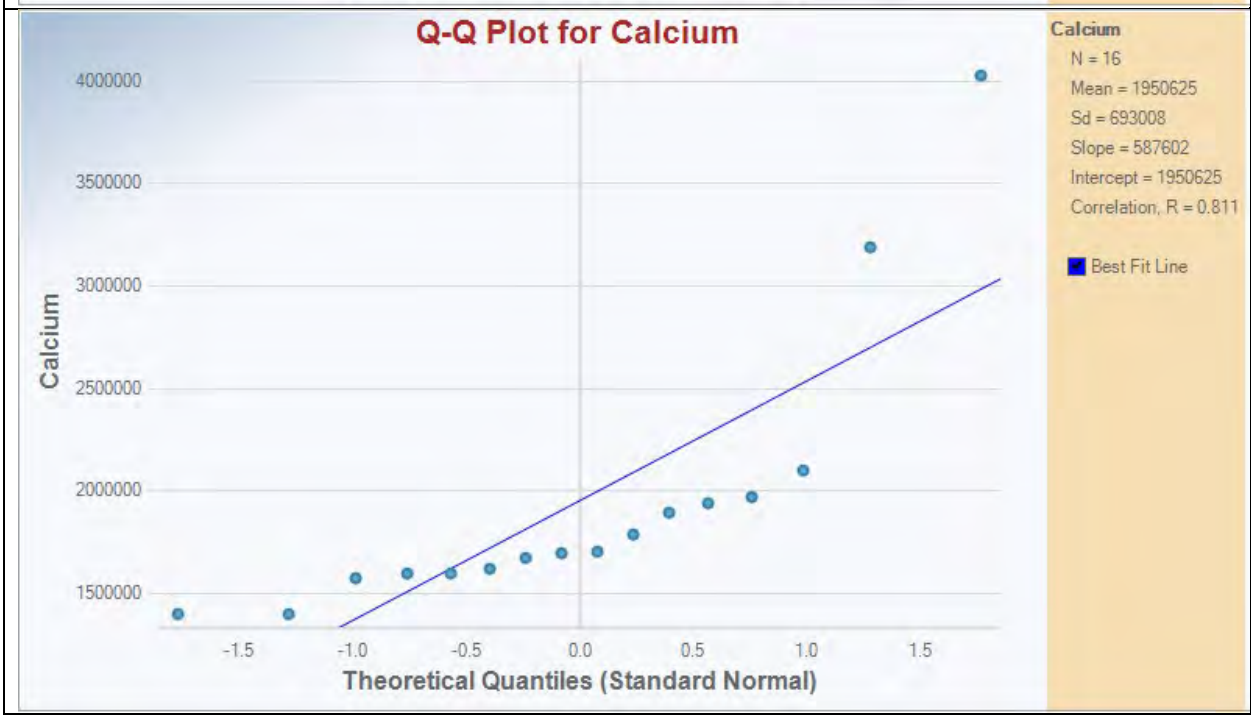
- Outliers
- Background Threshold Values

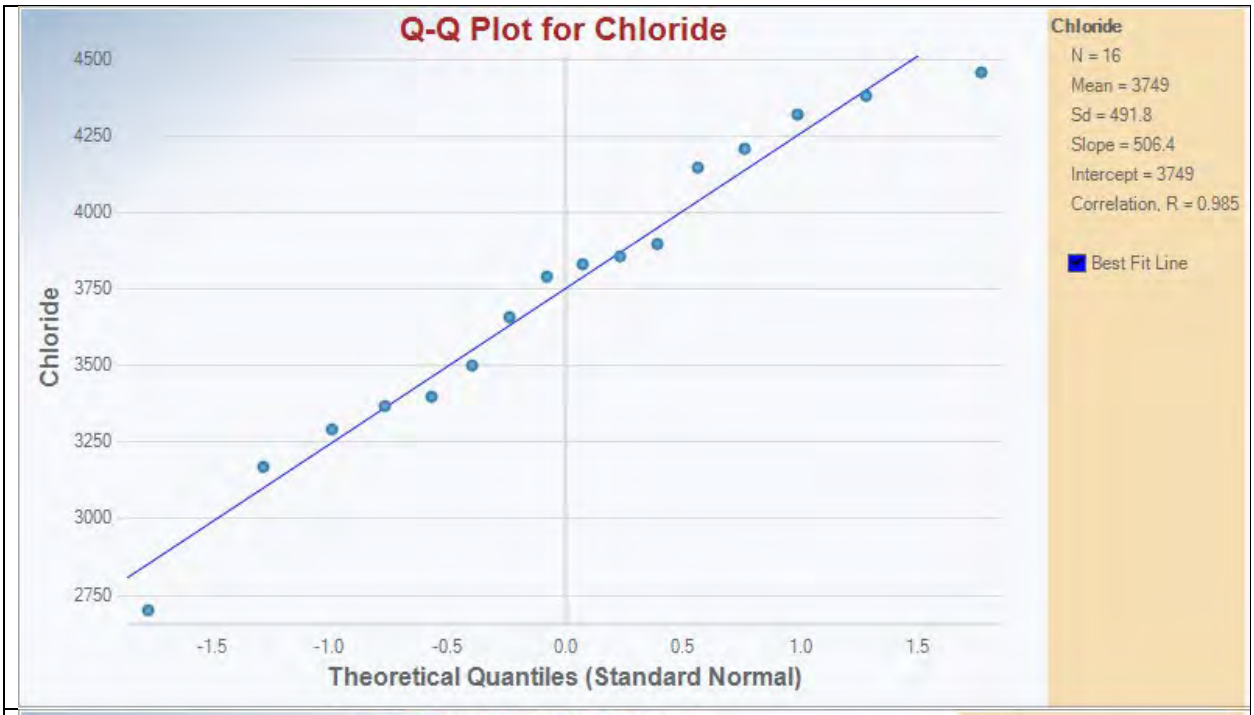
Appendix IV Constituents

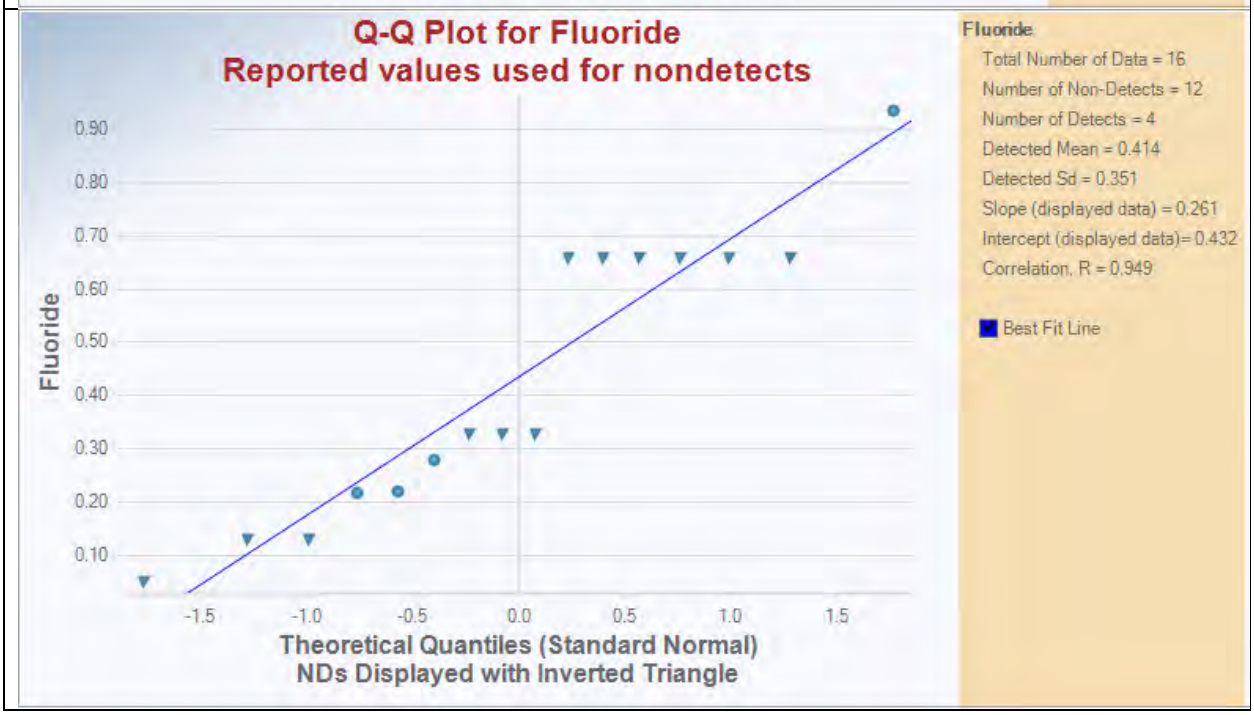
- Outliers
- Background Threshold Values

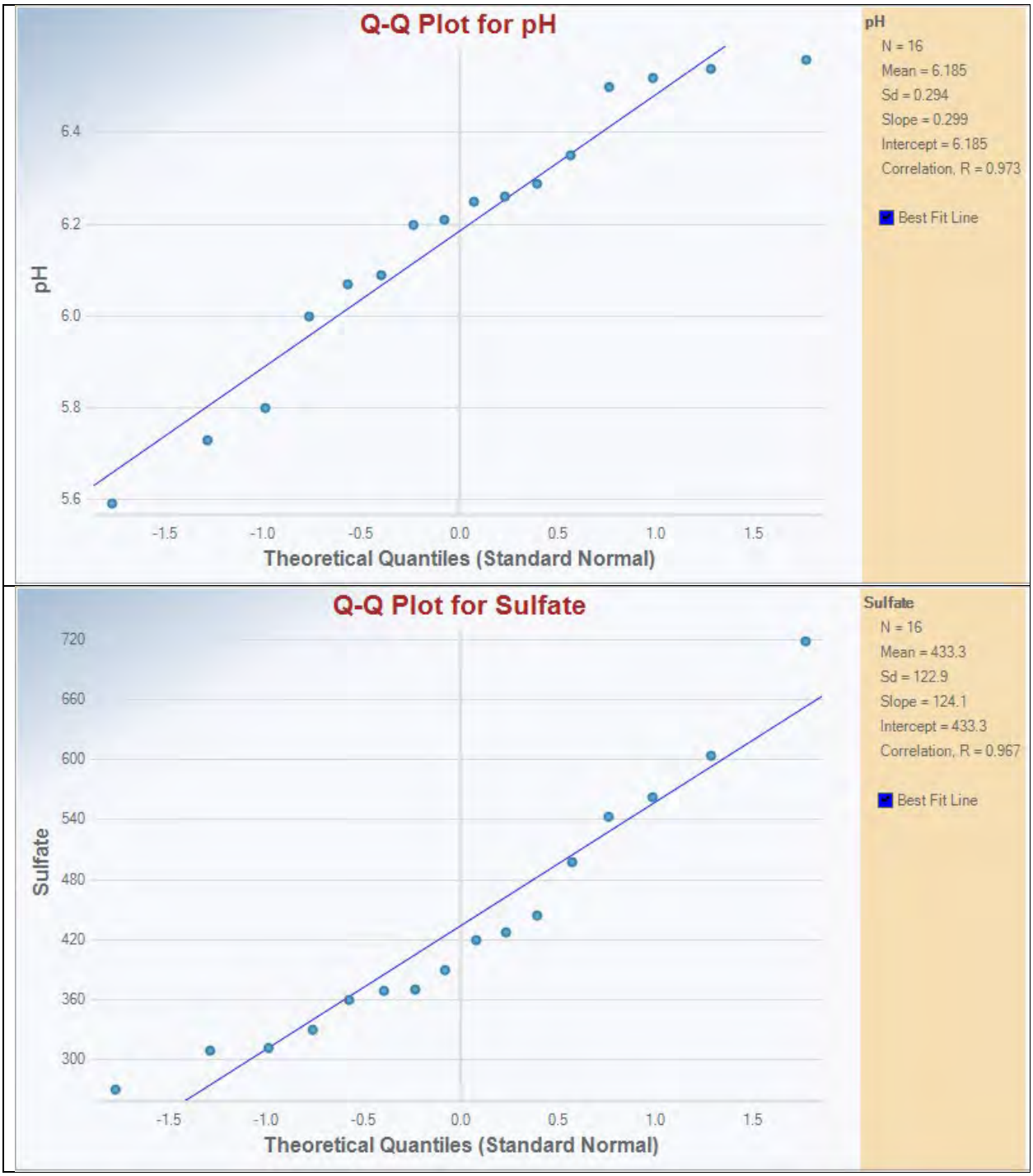
Appendix III Constituents

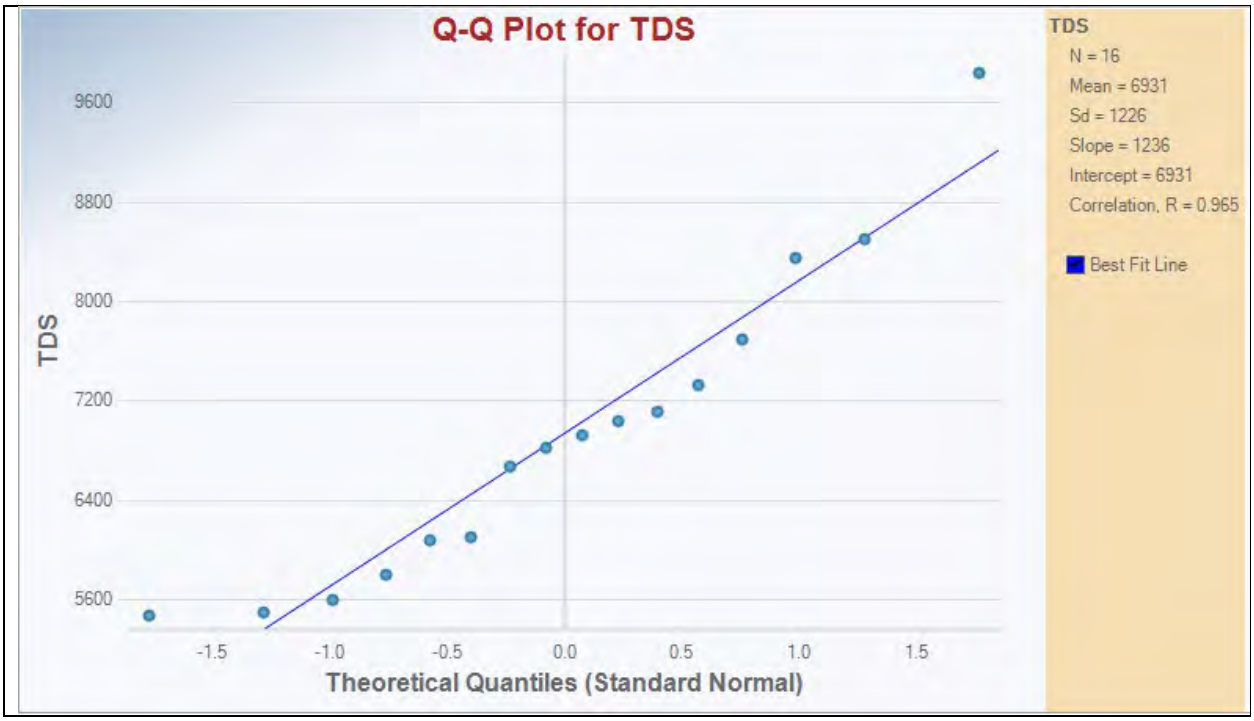

Q-Q Plot for Boron
Boron
55000
50000
45000
40000
35000
30000
25000
20000
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)
Boron
N = 16
Mean = 26663
Sd = 9584
Slope = 7902
Intercept = 26663
Correlation, R = 0.789
Best Fit Line


Q-Q Plot for Calcium
Calcium
4000000
3500000
3000000
2500000
2000000
1500000
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)
Calcium
N = 16
Mean = 1950625
Sd = 693008
Slope = 587602
Intercept = 1950625
Correlation, R = 0.811
Best Fit Line


Q-Q Plot for Chloride
Chloride
Theoretical Quantiles (Standard Normal)
4500
4250
4000
3750
3500
3250
3000
2750
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
Chloride
N = 16
Mean = 3749
Sd = 491.8
Slope = 506.4
Intercept = 3749
Correlation, R = 0.985
Best Fit Line


Q-Q Plot for Fluoride
Reported values used for nondetects
Fluoride
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle
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
Fluoride
Total Number of Data = 16
Number of Non-Detects = 12
Number of Detects = 4
Detected Mean = 0.414
Detected Sd = 0.351
Slope (displayed data) = 0.261
Intercept (displayed data)= 0.432
Correlation, R = 0.949
Best Fit Line


Q-Q Plot for pH
pH
N = 16
Mean = 6.185
Sd = 0.294
Slope = 0.299
Intercept = 6.185
Correlation, R = 0.973
Best Fit Line
6.4
6.2
6.0
5.8
5.6
pH
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)
Q-Q Plot for Sulfate
Sulfate
N = 16
Mean = 433.3
Sd = 122.9
Slope = 124.1
Intercept = 433.3
Correlation, R = 0.967
Best Fit Line
720
660
600
540
480
420
360
300
Sulfate
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)


Q-Q Plot for TDS
TDS
N = 16
Mean = 6931
Sd = 1226
Slope = 1236
Intercept = 6931
Correlation, R = 0.965
Best Fit Line
9600
8800
8000
7200
6400
5600
TDS
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)

Outlier Tests for Selected Uncensored Variables

User Selected Options

Date/Time of Computation ProUCL 5.2 10/17/2023 3:55:01 PM

From File Williams_New_FGD_Pond_Data_Summary_Table_8_21_2023_JC_b.xls

Full Precision OFF

Dixon's Outlier Test for Boron

Number of Observations = 16

10% critical value: 0.454

5% critical value: 0.507

1% critical value: 0.595

1. Observation Value 55500 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.829

For 10% significance level, 55500 is an outlier.

For 5% significance level, 55500 is an outlier.

For 1% significance level, 55500 is an outlier.

2. Observation Value 19000 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.310

For 10% significance level, 19000 is not an outlier.

For 5% significance level, 19000 is not an outlier.

For 1% significance level, 19000 is not an outlier.

Outlier Tests for Selected Uncensored Variables

User Selected Options

Date/Time of Computation ProUCL 5.2 10/17/2023 4:34:44 PM

From File Williams_New_FGD_Pond_Data_Summary_Table_8_21_2023_JC_b.xls

Full Precision OFF

Dixon's Outlier Test for Boron

Number of Observations = 15

10% critical value: 0.472

5% critical value: 0.525

1% critical value: 0.616

1. Observation Value 44400 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.816

For 10% significance level, 44400 is an outlier.

For 5% significance level, 44400 is an outlier.

For 1% significance level, 44400 is an outlier.

2. Observation Value 19000 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.382

For 10% significance level, 19000 is not an outlier.

For 5% significance level, 19000 is not an outlier.

For 1% significance level, 19000 is not an outlier.

Outlier Tests for Selected Uncensored Variables

User Selected Options

Date/Time of Computation ProUCL 5.2 10/17/2023 4:07:46 PM

From File Williams_New_FGD_Pond_Data_Summary_Table_8_21_2023_JC_b.xls

Full Precision OFF

Dixon's Outlier Test for Calcium

Number of Observations = 16

10% critical value: 0.454

5% critical value: 0.507

1% critical value: 0.595

1. Observation Value 4030000 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.788

For 10% significance level, 4030000 is an outlier.

For 5% significance level, 4030000 is an outlier.

For 1% significance level, 4030000 is an outlier.

2. Observation Value 1400000 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.257

For 10% significance level, 1400000 is not an outlier.

For 5% significance level, 1400000 is not an outlier.

For 1% significance level, 1400000 is not an outlier.

Outlier Tests for Selected Uncensored Variables

User Selected Options

Date/Time of Computation ProUCL 5.2 10/17/2023 4:35:59 PM

From File Williams_New_FGD_Pond_Data_Summary_Table_8_21_2023_JC_b.xls

Full Precision OFF

Dixon's Outlier Test for Calcium

Number of Observations = 15

10% critical value: 0.472

5% critical value: 0.525

1% critical value: 0.616

1. Observation Value 3190000 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.758

For 10% significance level, 3190000 is an outlier.

For 5% significance level, 3190000 is an outlier.

For 1% significance level, 3190000 is an outlier.

2. Observation Value 1400000 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.316

For 10% significance level, 1400000 is not an outlier.

For 5% significance level, 1400000 is not an outlier.

For 1% significance level, 1400000 is not an outlier.

Background Statistics for Uncensored Full Data Sets

User Selected Options

Date/Time of Computation	ProUCL 5.2 10/17/2023 4:39:43 PM
From File	P:\Clients\Dominion\South Carolina Sites\6_Williams Station SC\Williams Station\CCR\New FGD Pond\2023\Baseline Evaluation\New Background Stats\Williams_New_FGD_Pond_Data_Summary_Table_8_21_2023_JC.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	12
Number of Bootstrap Operations	2000

Boron

General Statistics

Total Number of Observations	14	Number of Distinct Observations	13
		Number of Missing Observations	2
Minimum	19000	First Quartile	22525
Second Largest	25800	Median	23200
Maximum	27400	Third Quartile	25075
Mean	23336	SD	2428
Coefficient of Variation	0.104	Skewness	-0.411
Mean of logged Data	10.05	SD of logged Data	0.107

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.614	d2max (for USL)	2.372

Normal GOF Test

Shapiro Wilk Test Statistic	0.949	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.825	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.151	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.263	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	29683	90% Percentile (z)	26448
95% UPL (t)	27787	95% Percentile (z)	27330
95% UPL for Next 12 Observations	**31145**	99% Percentile (z)	28985
95% UPL for Mean of 12 Observations	25027	95% USL	29095

Gamma GOF Test

A-D Test Statistic	0.38	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.733	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	0.228	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	95.96	k star (bias corrected MLE)	75.44
Theta hat (MLE)	243.2	Theta star (bias corrected MLE)	309.3
nu hat (MLE)	2687	nu star (bias corrected)	2112
MLE Mean (bias corrected)	23336	MLE Sd (bias corrected)	2687

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	28076	90% Percentile	26838
95% Hawkins Wixley (HW) Approx. Gamma UPL	28117	95% Percentile	27924
95% WH UPL for Next 12 Observations	32124	99% Percentile	30036
95% HW UPL for Next 12 Observations	32272		
95% WH Approx. Gamma UTL with 95% Coverage	30317	95% HW Approx. Gamma UTL with 95% Coverage	30410
95% WH USL	29609	95% HW USL	29684

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.931	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.895	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.171	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.208	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	30715	90% Percentile (z)	26630
95% UPL (t)	28251	95% Percentile (z)	27687
95% UPL for Next 12 Observations	32761	99% Percentile (z)	29783
95% UPL for Mean of 12 Observations	25013	95% USL	29928

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	14	95% UTL with 95% Coverage	27400
Approx, f used to compute achieved CC	0.737	Approximate Actual Confidence Coefficient achieved by UTL	0.512
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	27400	95% BCA Bootstrap UTL with 95% Coverage	27400
95% UPL	27400	90% Percentile	25740
90% Chebyshev UPL	30876	95% Percentile	26360
95% Chebyshev UPL	34292	99% Percentile	27192
95% USL	27400		

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	14	Number of Distinct Observations	12
		Number of Missing Observations	2
Minimum	1400000	First Quartile	1600000
Second Largest	1970000	Median	1690000
Maximum	2100000	Third Quartile	1872500
Mean	1713571	SD	207053
Coefficient of Variation	0.121	Skewness	0.255

Mean of logged Data	14.35	SD of logged Data	0.121

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.614	d2max (for USL)	2.372

Normal GOF Test

Shapiro Wilk Test Statistic	0.956	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.825	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.15	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.263	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	2254808	90% Percentile (z)	1978920
95% UPL (t)	2093118	95% Percentile (z)	2054143
95% UPL for Next 12 Observations	**2379469**	99% Percentile (z)	2195248
95% UPL for Mean of 12 Observations	1857821	95% USL	2204629

Gamma GOF Test

A-D Test Statistic	0.29	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.733	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.135	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.228	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	74.11	k star (bias corrected MLE)	58.27
Theta hat (MLE)	23123	Theta star (bias corrected MLE)	29405
nu hat (MLE)	2075	nu star (bias corrected)	1632
MLE Mean (bias corrected)	1713571	MLE Sd (bias corrected)	224472

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2111961	90% Percentile	2006803
95% Hawkins Wixley (HW) Approx. Gamma UPL	2114708	95% Percentile	2098741
95% WH UPL for Next 12 Observations	2457710	99% Percentile	2278555

95% HW UPL for Next 12 Observations	2469671		
95% WH Approx. Gamma UTL with 95% Coverage	2302892	95% HW Approx. Gamma UTL with 95% Coverage	2310056
95% WH USL	2242458	95% HW USL	2248043

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.957	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.895	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.127	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.208	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	2333484	90% Percentile (z)	1986786
95% UPL (t)	2123565	95% Percentile (z)	2075856
95% UPL for Next 12 Observations	2509394	99% Percentile (z)	2253848
95% UPL for Mean of 12 Observations	1851352	95% USL	2266208

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	14	95% UTL with 95% Coverage	2100000
Approx, f used to compute achieved CC	0.737	Approximate Actual Confidence Coefficient achieved by UTL	0.512
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	2100000	95% BCA Bootstrap UTL with 95% Coverage	2100000
95% UPL	2100000	90% Percentile	1961000
90% Chebyshev UPL	2356532	95% Percentile	2015500
95% Chebyshev UPL	2647771	99% Percentile	2083100
95% USL	2100000		

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 Uncensored Full Data Sets

User Selected Options

Date/Time of Computation	ProUCL 5.2 10/17/2023 4:15:28 PM
From File	P:\Clients\Dominion\South Carolina Sites\6_Williams Station SC\Williams Station\CCR\New FGD Pond\2023\Baseline Evaluation\New Background Stats\Williams_New_FGD_Pond_Data_Summary_Table_8_21_2023_JC.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	12
Number of Bootstrap Operations	2000

Chloride

General Statistics

Total Number of Observations	16	Number of Distinct Observations	16
Minimum	2700	First Quartile	3393
Second Largest	4380	Median	3810
Maximum	4460	Third Quartile	4165
Mean	3749	SD	491.8
Coefficient of Variation	0.131	Skewness	-0.383
Mean of logged Data	8.221	SD of logged Data	0.136

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.524	d2max (for USL)	2.443

Normal GOF Test

Shapiro Wilk Test Statistic	0.966	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.844	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.105	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.248	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	4991	90% Percentile (z)	4380
95% UPL (t)	4638	95% Percentile (z)	4558
95% UPL for Next 12 Observations	**5289**	99% Percentile (z)	4893
95% UPL for Mean of 12 Observations	4079	95% USL	4951

Gamma GOF Test

A-D Test Statistic	0.248	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.735	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.113	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.214	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	59.1	k star (bias corrected MLE)	48.06
Theta hat (MLE)	63.44	Theta star (bias corrected MLE)	78.01
nu hat (MLE)	1891	nu star (bias corrected)	1538
MLE Mean (bias corrected)	3749	MLE Sd (bias corrected)	540.8

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	4711	90% Percentile	4457
95% Hawkins Wixley (HW) Approx. Gamma UPL	4722	95% Percentile	4681
95% WH UPL for Next 12 Observations	5530	99% Percentile	5121
95% HW UPL for Next 12 Observations	5568		
95% WH Approx. Gamma UTL with 95% Coverage	5144	95% HW Approx. Gamma UTL with 95% Coverage	5167
95% WH USL	5094	95% HW USL	5116

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.95	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.906	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.119	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.196	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	5246	90% Percentile (z)	4428
95% UPL (t)	4757	95% Percentile (z)	4653
95% UPL for Next 12 Observations	5698	99% Percentile (z)	5106
95% UPL for Mean of 12 Observations	4073	95% USL	5189

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	16	95% UTL with 95% Coverage	4460
Approx, f used to compute achieved CC	0.842	Approximate Actual Confidence Coefficient achieved by UTL	0.56
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	4460	95% BCA Bootstrap UTL with 95% Coverage	4460
95% UPL	4460	90% Percentile	4350
90% Chebyshev UPL	5270	95% Percentile	4400
95% Chebyshev UPL	5959	99% Percentile	4448
95% USL	4460		

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	16	Number of Distinct Observations	16
Minimum	5.59	First Quartile	6.053
Second Largest	6.54	Median	6.23
Maximum	6.56	Third Quartile	6.388
Mean	**6.185**	SD	0.294
Coefficient of Variation	0.0475	Skewness	-0.596
Mean of logged Data	1.821	SD of logged Data	0.0482

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.524	d2max (for USL)	2.443

Normal GOF Test

Shapiro Wilk Test Statistic	0.937	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.844	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.145	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.248	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	6.926	90% Percentile (z)	6.561
95% UPL (t)	6.715	95% Percentile (z)	6.668
95% UPL for Next 12 Observations	**7.104**	99% Percentile (z)	6.868
95% UPL for Mean of 12 Observations	6.382	95% USL	6.902

Gamma GOF Test

A-D Test Statistic	0.399	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.736	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.152	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.214	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	464.7	k star (bias corrected MLE)	377.6
Theta hat (MLE)	0.0133	Theta star (bias corrected MLE)	0.0164
nu hat (MLE)	14871	nu star (bias corrected)	12084
MLE Mean (bias corrected)	6.185	MLE Sd (bias corrected)	0.318

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	6.731	90% Percentile	6.596
95% Hawkins Wixley (HW) Approx. Gamma UPL	6.733	95% Percentile	6.718
95% WH UPL for Next 12 Observations	7.155	99% Percentile	6.949
95% HW UPL for Next 12 Observations	7.162		

95% WH Approx. Gamma UTL with 95% Coverage	6.959	95% HW Approx. Gamma UTL with 95% Coverage	6.963
95% WH USL	6.933	95% HW USL	6.937

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.93	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.906	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.154	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.196	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	6.977	90% Percentile (z)	6.572
95% UPL (t)	6.74	95% Percentile (z)	6.688
95% UPL for Next 12 Observations	7.183	99% Percentile (z)	6.911
95% UPL for Mean of 12 Observations	6.381	95% USL	6.95

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	16	95% UTL with 95% Coverage	6.56
Approx, f used to compute achieved CC	0.842	Approximate Actual Confidence Coefficient achieved by UTL	0.56
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	6.56	95% BCA Bootstrap UTL with 95% Coverage	6.56
95% UPL	6.56	90% Percentile	6.53
90% Chebyshev UPL	7.093	95% Percentile	6.545
95% Chebyshev UPL	7.504	99% Percentile	6.557
95% USL	6.56		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Sulfate

General Statistics

Total Number of Observations	16	Number of Distinct Observations	16
Minimum	270	First Quartile	352.5
Second Largest	604	Median	405
Maximum	719	Third Quartile	509.3
Mean	433.3	SD	122.9
Coefficient of Variation	0.284	Skewness	0.902
Mean of logged Data	6.036	SD of logged Data	0.271

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.524	d2max (for USL)	2.443

Normal GOF Test

Shapiro Wilk Test Statistic	0.933	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.844	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.149	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.248	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	743.5	90% Percentile (z)	590.8
95% UPL (t)	655.4	95% Percentile (z)	635.4
95% UPL for Next 12 Observations	**818**	99% Percentile (z)	719.2
95% UPL for Mean of 12 Observations	515.5	95% USL	733.6

Gamma GOF Test

A-D Test Statistic	0.271	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.738	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.123	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.215	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	14.33	k star (bias corrected MLE)	11.68

Theta hat (MLE)	30.24	Theta star (bias corrected MLE)	37.08
nu hat (MLE)	458.5	nu star (bias corrected)	373.9
MLE Mean (bias corrected)	433.3	MLE Sd (bias corrected)	126.8

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	670.2	90% Percentile	601.5
95% Hawkins Wixley (HW) Approx. Gamma UPL	672.9	95% Percentile	660.6
95% WH UPL for Next 12 Observations	901.9	99% Percentile	781.2
95% HW UPL for Next 12 Observations	917.6		
95% WH Approx. Gamma UTL with 95% Coverage	790.1	95% HW Approx. Gamma UTL with 95% Coverage	798.5
95% WH USL	776	95% HW USL	783.5

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.975	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.906	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.108	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.196	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	828.6	90% Percentile (z)	591.8
95% UPL (t)	682.3	95% Percentile (z)	653
95% UPL for Next 12 Observations	976.3	99% Percentile (z)	785.4
95% UPL for Mean of 12 Observations	501.4	95% USL	810.7

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	16	95% UTL with 95% Coverage	719
Approx, f used to compute achieved CC	0.842	Approximate Actual Confidence Coefficient achieved by UTL	0.56
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	719	95% BCA Bootstrap UTL with 95% Coverage	719
95% UPL	719	90% Percentile	583.5

90% Chebyshev UPL	813.4	95% Percentile	632.8
95% Chebyshev UPL	985.6	99% Percentile	701.8
95% USL	719		

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	16	Number of Distinct Observations	16
Minimum	5470	First Quartile	6010
Second Largest	8510	Median	6880
Maximum	9850	Third Quartile	7423
Mean	6931	SD	1226
Coefficient of Variation	0.177	Skewness	0.875
Mean of logged Data	8.83	SD of logged Data	0.17

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.524	d2max (for USL)	2.443

Normal GOF Test

Shapiro Wilk Test Statistic	0.928	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.844	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.126	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.248	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	10025	90% Percentile (z)	8502
95% UPL (t)	9146	95% Percentile (z)	8947

95% UPL for Next 12 Observations	**10768**	99% Percentile (z)	9783
95% UPL for Mean of 12 Observations	7751	95% USL	9926

Gamma GOF Test

A-D Test Statistic	0.306	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.736	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.132	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.215	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	36.16	k star (bias corrected MLE)	29.42
Theta hat (MLE)	191.7	Theta star (bias corrected MLE)	235.6
nu hat (MLE)	1157	nu star (bias corrected)	941.5
MLE Mean (bias corrected)	6931	MLE Sd (bias corrected)	1278

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	9234	90% Percentile	8610
95% Hawkins Wixley (HW) Approx. Gamma UPL	9248	95% Percentile	9158
95% WH UPL for Next 12 Observations	11275	99% Percentile	10244
95% HW UPL for Next 12 Observations	11357		
95% WH Approx. Gamma UTL with 95% Coverage	10306	95% HW Approx. Gamma UTL with 95% Coverage	10351
95% WH USL	10182	95% HW USL	10222

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.951	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.906	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.123	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.196	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	10501	90% Percentile (z)	8500
95% UPL (t)	9295	95% Percentile (z)	9042

95% UPL for Next 12 Observations	11641	99% Percentile (z)	10154
95% UPL for Mean of 12 Observations	7660	95% USL	10358

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	16	95% UTL with 95% Coverage	9850
Approx, f used to compute achieved CC	0.842	Approximate Actual Confidence Coefficient achieved by UTL	0.56
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	9850	95% BCA Bootstrap UTL with 95% Coverage	9850
95% UPL	9850	90% Percentile	8430
90% Chebyshev UPL	10722	95% Percentile	8845
95% Chebyshev UPL	12439	99% Percentile	9649
95% USL	9850		

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 10/17/2023 4:22:08 PM
From File	Williams_New_FGD_Pond_Data_Summary_Table_8_21_2023_JC_b.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	12
Number of Bootstrap Operations	2000

Fluoride

General Statistics

Total Number of Observations	16	Number of Missing Observations	0
Number of Distinct Observations	8		
Number of Detects	4	Number of Non-Detects	12
Number of Distinct Detects	**4**	Number of Distinct Non-Detects	4
Minimum Detect	0.218	Minimum Non-Detect	0.05
Maximum Detect	0.938	Maximum Non-Detect	0.66
Variance Detected	0.123	Percent Non-Detects	75%
Mean Detected	0.414	SD Detected	0.351
Mean of Detected Logged Data	-1.094	SD of Detected Logged Data	0.696

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.524	d2max (for USL)	2.443

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.691	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.687	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.399	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.413	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	0.194	KM SD	0.214
95% UTL95% Coverage	0.734	95% KM UPL (t)	0.58
95% KM UPL for Next 12 Observations	0.863	95% KM UPL for Mean of Next 12 Observations	0.337
90% KM Percentile (z)	0.468	95% KM Percentile (z)	0.546
99% KM Percentile (z)	0.691	95% KM USL	0.716

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.268	SD	0.208
95% UTL95% Coverage	0.793	95% UPL (t)	0.644
95% UPL for Next 12 Observations	0.919	95% UPL for Mean of Next 12 Observations	0.407
90% Percentile (z)	0.535	95% Percentile (z)	0.61
99% Percentile (z)	0.752	95% USL	0.777

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	0.718	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.66	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.392	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.397	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)	2.516	k star (bias corrected MLE)	0.796
Theta hat (MLE)	0.165	Theta star (bias corrected MLE)	0.52
nu hat (MLE)	20.13	nu star (bias corrected)	6.365
MLE Mean (bias corrected)	0.414		
MLE Sd (bias corrected)	0.464	95% Percentile of Chisquare (2kstar)	5.172

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	0.166
Maximum	0.938	Median	0.0569
SD	0.239	CV	1.442
k hat (MLE)	0.56	k star (bias corrected MLE)	0.496
Theta hat (MLE)	0.296	Theta star (bias corrected MLE)	0.334
nu hat (MLE)	17.91	nu star (bias corrected)	15.89
MLE Mean (bias corrected)	0.166	MLE Sd (bias corrected)	0.235
95% Percentile of Chisquare (2kstar)	3.824	90% Percentile	0.45
95% Percentile	0.639	99% Percentile	1.105

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	1.171	1.382	95% Approx. Gamma UPL	0.68	0.733
95% Gamma USL	1.107	1.293	95% UPL for Next 12 Observations	1.735	2.204

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.194	SD (KM)	0.214
Variance (KM)	0.0457	SE of Mean (KM)	0.07
k hat (KM)	0.826	k star (KM)	0.713
nu hat (KM)	26.44	nu star (KM)	22.82
theta hat (KM)	0.235	theta star (KM)	0.272
80% gamma percentile (KM)	0.319	90% gamma percentile (KM)	0.485
95% gamma percentile (KM)	0.657	99% gamma percentile (KM)	1.065

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	0.866	0.923	95% Approx. Gamma UPL	0.575	0.587
95% KM Gamma Percentile	0.52	0.525	95% Gamma USL	0.83	0.879

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.749	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.792	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.352	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.346	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.205	Mean in Log Scale	-1.897
SD in Original Scale	0.213	SD in Log Scale	0.766
95% UTL95% Coverage	1.037	95% BCA UTL95% Coverage	0.938
95% Bootstrap (%) UTL95% Coverage	0.938	95% UPL (t)	0.599
95% UPL for Next 12 Observations	1.649	95% UPL for Mean of 12 Observations	0.25
90% Percentile (z)	0.4	95% Percentile (z)	0.529
99% Percentile (z)	0.891	95% USL	0.974

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-2.082	95% KM UTL (Lognormal)95% Coverage	1.273
KM SD of Logged Data	0.92	95% KM UPL (Lognormal)	0.658
95% KM Percentile Lognormal (z)	0.567	95% KM USL (Lognormal)	1.182

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.268	Mean in Log Scale	-1.599
SD in Original Scale	0.208	SD in Log Scale	0.856
95% UTL95% Coverage	1.752	95% UPL (t)	0.948
95% UPL for Next 12 Observations	2.941	95% UPL for Mean of 12 Observations	0.358
90% Percentile (z)	0.605	95% Percentile (z)	0.826
99% Percentile (z)	1.479	95% USL	1.635

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

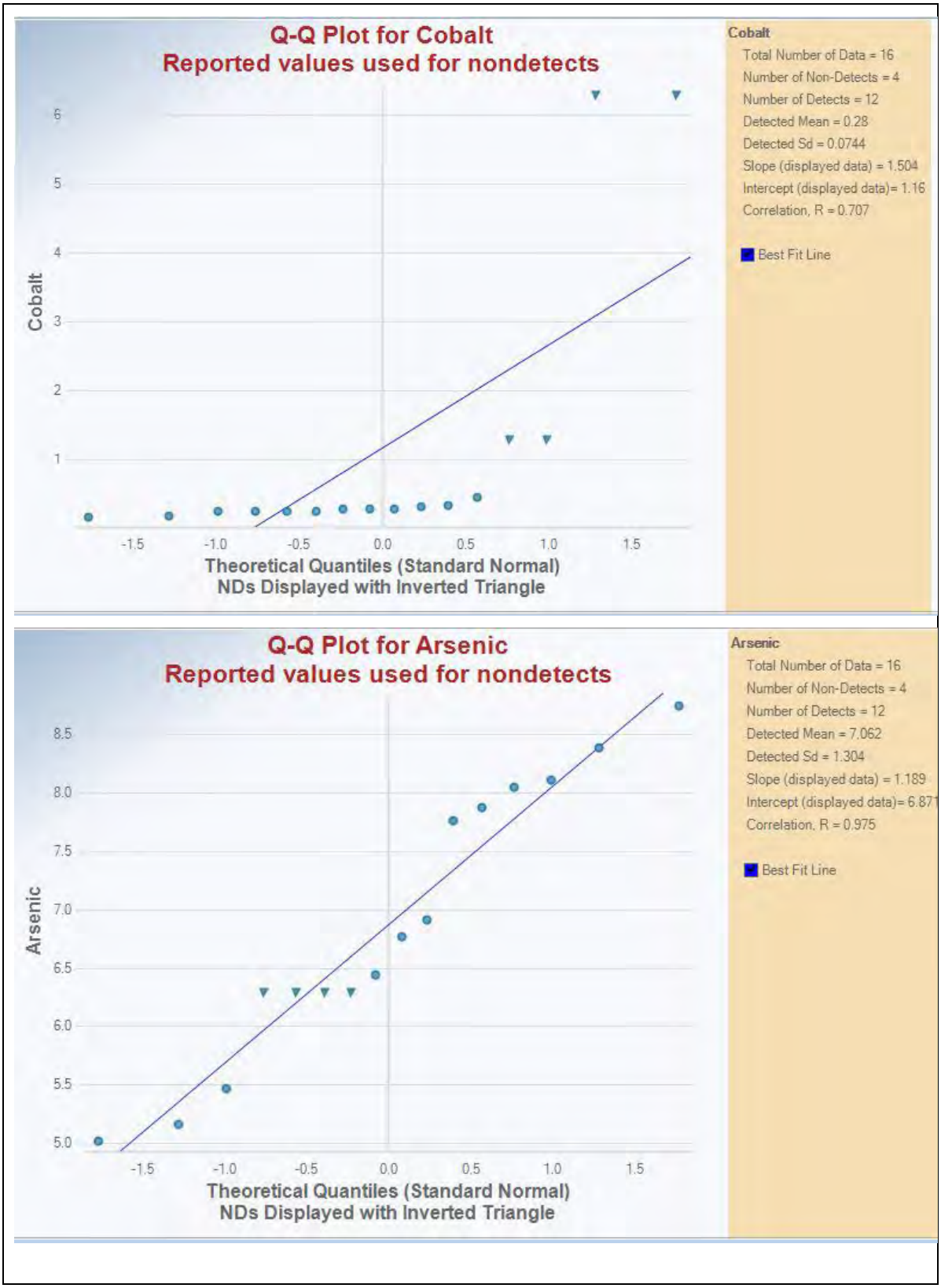
Data appear to follow a Discernible Distribution

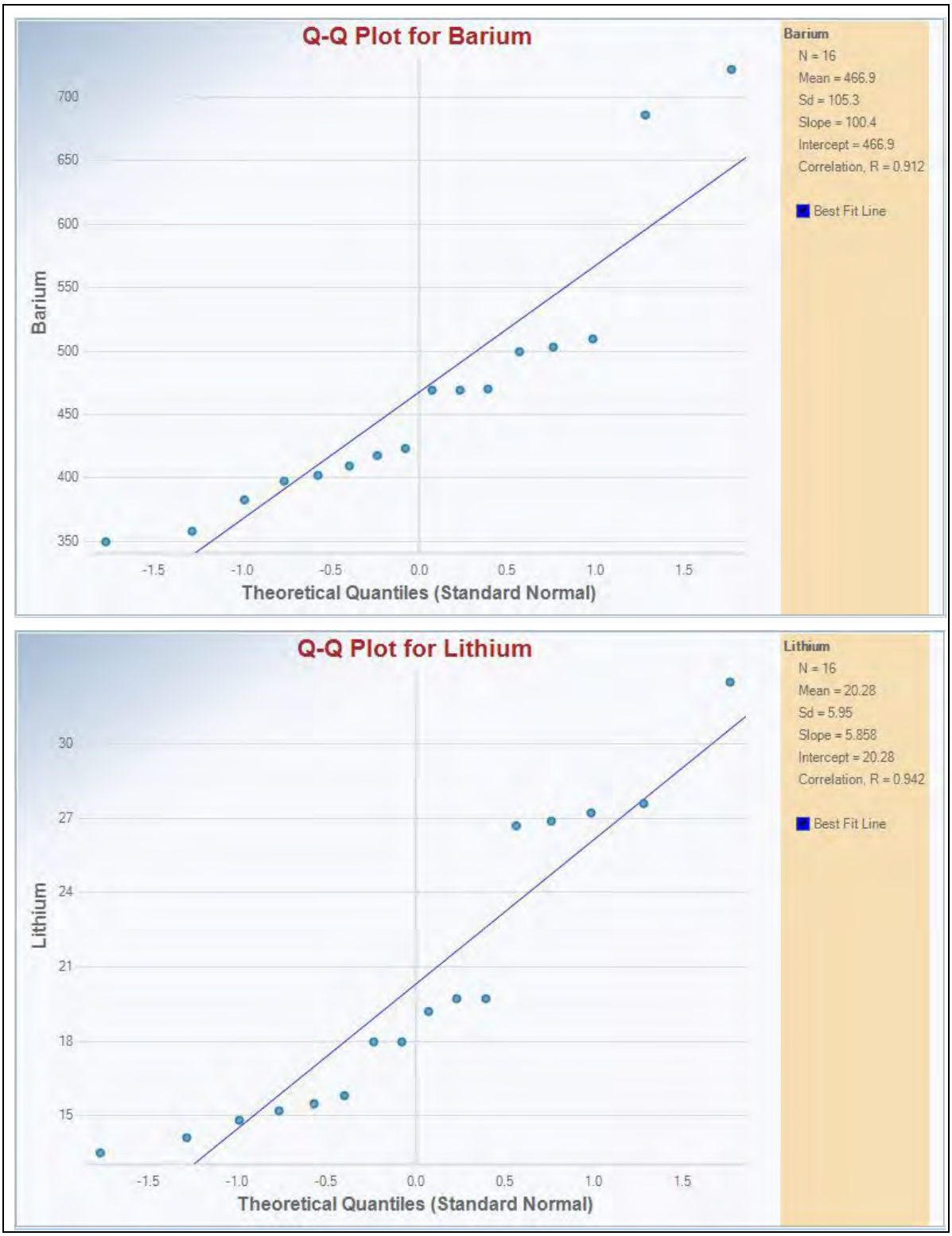
Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

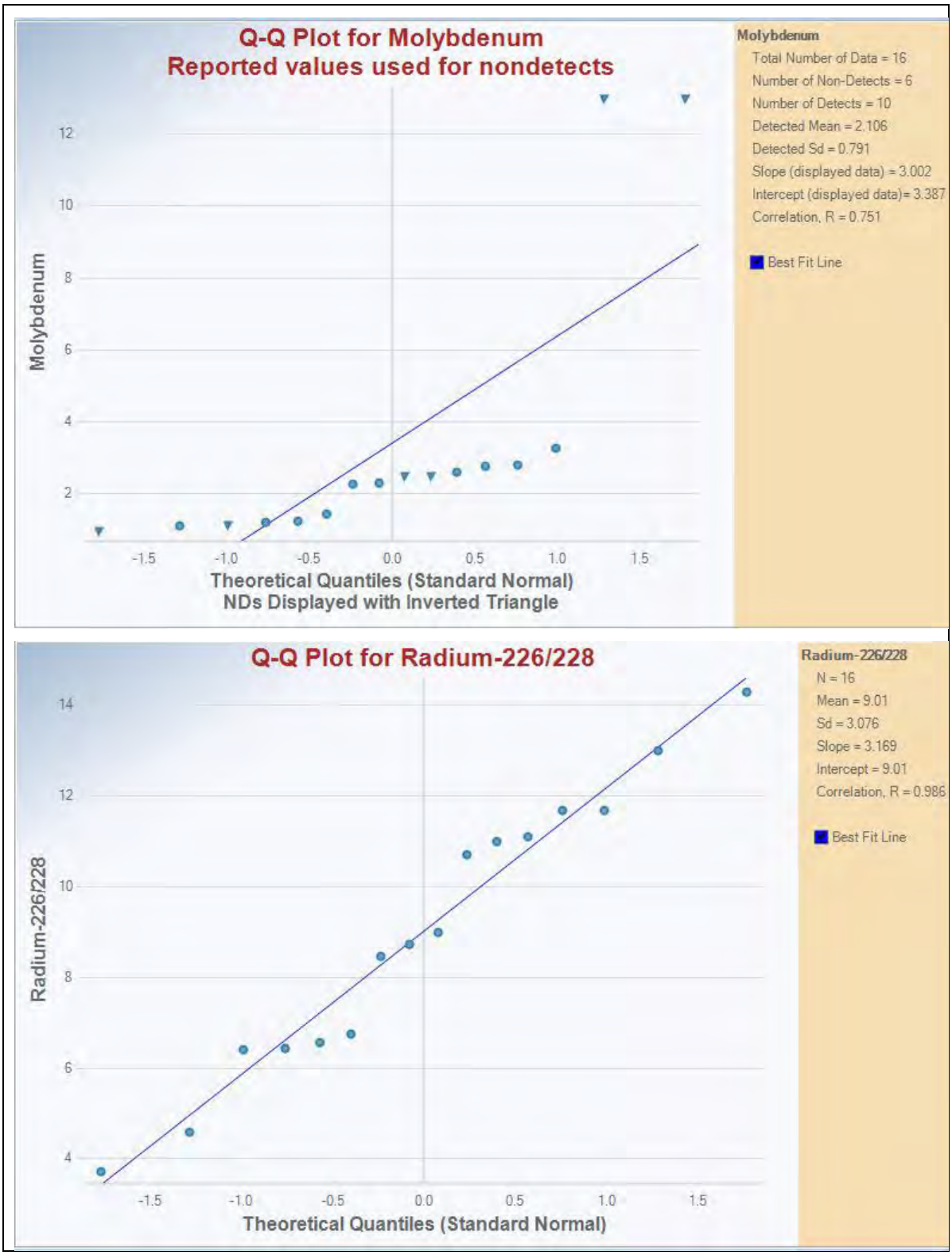
Order of Statistic, r	16	95% UTL with95% Coverage	0.938
Approx, f used to compute achieved CC	0.842	Approximate Actual Confidence Coefficient achieved by UTL	0.56
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.938
95% USL	**0.938**	95% KM Chebyshev UPL	1.154

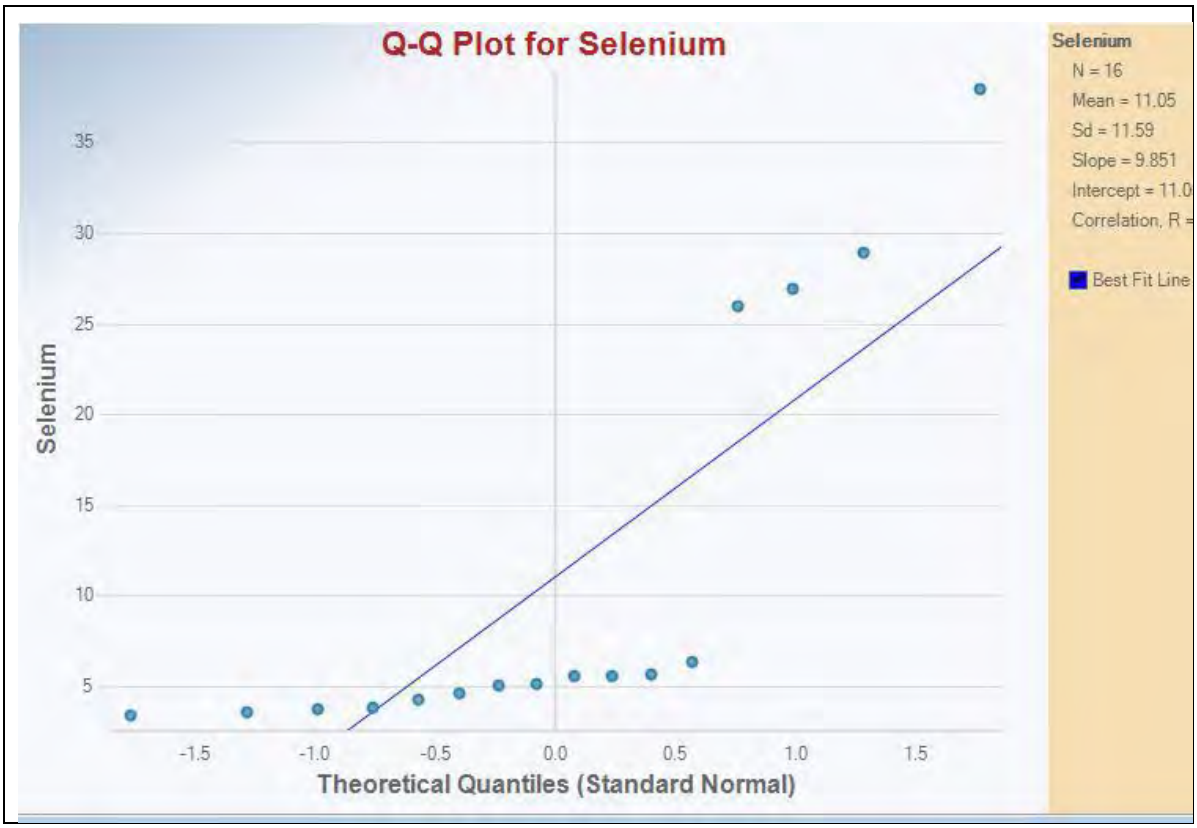
Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
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 Cobalt
Reported values used for nondetects
Cobalt
Total Number of Data = 16
Number of Non-Detects = 4
Number of Detects = 12
Detected Mean = 0.28
Detected Sd = 0.0744
Slope (displayed data) = 1.504
Intercept (displayed data)= 1.16
Correlation, R = 0.707
Best Fit Line
Cobalt
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle
Q-Q Plot for Arsenic
Reported values used for nondetects
Arsenic
Total Number of Data = 16
Number of Non-Detects = 4
Number of Detects = 12
Detected Mean = 7.062
Detected Sd = 1.304
Slope (displayed data) = 1.189
Intercept (displayed data)= 6.87
Correlation, R = 0.975
Best Fit Line
Arsenic
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle


Q-Q Plot for Barium
Barium
N = 16
Mean = 466.9
Sd = 105.3
Slope = 100.4
Intercept = 466.9
Correlation, R = 0.912
Best Fit Line
Barium
700
650
600
550
500
450
400
350
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)
Q-Q Plot for Lithium
Lithium
N = 16
Mean = 20.28
Sd = 5.95
Slope = 5.858
Intercept = 20.28
Correlation, R = 0.942
Best Fit Line
Lithium
30
27
24
21
18
15
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)


Q-Q Plot for Molybdenum
Reported values used for nondetects
Molybdenum
Total Number of Data = 16
Number of Non-Detects = 6
Number of Detects = 10
Detected Mean = 2.106
Detected Sd = 0.791
Slope (displayed data) = 3.002
Intercept (displayed data)= 3.387
Correlation, R = 0.751
Best Fit Line
Molybdenum
Theoretical Quantiles (Standard Normal)
NDs Displayed with Inverted Triangle
Q-Q Plot for Radium-226/228
Radium-226/228
N = 16
Mean = 9.01
Sd = 3.076
Slope = 3.169
Intercept = 9.01
Correlation, R = 0.986
Best Fit Line
Radium-226/228
Theoretical Quantiles (Standard Normal)


Q-Q Plot for Selenium
Selenium
N = 16
Mean = 11.05
Sd = 11.59
Slope = 9.851
Intercept = 11.0
Correlation, R =
Best Fit Line
Selenium
35
30
25
20
15
10
5
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)

Background Statistics for Uncensored Full Data Sets

User Selected Options

Date/Time of Computation	ProUCL 5.2 11/8/2023 5:25:07 PM
From File	P:\Clients\Dominion\South Carolina Sites\6_Williams Station SC\Williams Station\CCR\New FGD Pond\2023\Baseline Evaluation\New Background Stats\Williams_New_FGD_Pond_Data_Summary_Table_8_21_2023_JC.xlsx
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1
Number of Bootstrap Operations	2000

Barium

General Statistics

Total Number of Observations	16	Number of Distinct Observations	15
Minimum	350	First Quartile	401
Second Largest	686	Median	446
Maximum	722	Third Quartile	500.8
Mean	466.9	SD	105.3
Coefficient of Variation	0.226	Skewness	1.486
Mean of logged Data	6.125	SD of logged Data	0.205

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.524	d2max (for USL)	2.443

Normal GOF Test

Shapiro Wilk Test Statistic	0.834	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.844	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.216	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.248	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	732.8	90% Percentile (z)	601.9
95% UPL (t)	**657.3**	95% Percentile (z)	640.2
95% USL	724.3	99% Percentile (z)	712

Gamma GOF Test

A-D Test Statistic	0.72	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.736	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.181	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.215	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	24.1	k star (bias corrected MLE)	19.62
Theta hat (MLE)	19.38	Theta star (bias corrected MLE)	23.8
nu hat (MLE)	771.2	nu star (bias corrected)	627.9
MLE Mean (bias corrected)	466.9	MLE Sd (bias corrected)	105.4

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	659.5	90% Percentile	606.1
95% Hawkins Wixley (HW) Approx. Gamma UPL	660	95% Percentile	652.8
95% WH Approx. Gamma UTL with 95% Coverage	752.2	99% Percentile	746.5
95% HW Approx. Gamma UTL with 95% Coverage	755.4		
95% WH USL	741.4	95% HW USL	744.2

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.899	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.906	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.172	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.196	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	766.7	90% Percentile (z)	594.5
95% UPL (t)	662	95% Percentile (z)	640.4

95% USL	754.1	99% Percentile (z)	736.3

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	16	95% UTL with 95% Coverage	722
Approx, f used to compute achieved CC	0.842	Approximate Actual Confidence Coefficient achieved by UTL	0.56
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	722	95% BCA Bootstrap UTL with 95% Coverage	722
95% UPL	722	90% Percentile	598
90% Chebyshev UPL	792.7	95% Percentile	695
95% Chebyshev UPL	940.2	99% Percentile	716.6
95% USL	722		

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	16	Number of Distinct Observations	14
Minimum	13.5	First Quartile	15.43
Second Largest	27.6	Median	18.6
Maximum	32.5	Third Quartile	26.75
Mean	20.28	SD	5.95
Coefficient of Variation	0.293	Skewness	0.739
Mean of logged Data	2.971	SD of logged Data	0.281

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.524	d2max (for USL)	2.443

Normal GOF Test

Shapiro Wilk Test Statistic	0.877	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.844	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.226	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.248	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	35.29	90% Percentile (z)	27.9
95% UPL (t)	**31.03**	95% Percentile (z)	30.06
95% USL	34.81	99% Percentile (z)	34.12

Gamma GOF Test

A-D Test Statistic	0.736	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.738	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.193	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.215	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	13.31	k star (bias corrected MLE)	10.86
Theta hat (MLE)	1.523	Theta star (bias corrected MLE)	1.868
nu hat (MLE)	425.9	nu star (bias corrected)	347.4
MLE Mean (bias corrected)	20.28	MLE Sd (bias corrected)	6.154

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	31.82	90% Percentile	28.45
95% Hawkins Wixley (HW) Approx. Gamma UPL	31.96	95% Percentile	31.34
95% WH Approx. Gamma UTL with 95% Coverage	37.72	99% Percentile	37.26
95% HW Approx. Gamma UTL with 95% Coverage	38.14		
95% WH USL	37.02	95% HW USL	37.4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.908	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.906	Data appear Lognormal at 10% Significance Level	

Lilliefors Test Statistic	0.18	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.196	Data appear Lognormal at 10% Significance Level	

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	39.66	90% Percentile (z)	27.97
95% UPL (t)	32.42	95% Percentile (z)	30.98
95% USL	38.77	99% Percentile (z)	37.52

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	16	95% UTL with 95% Coverage	32.5
Approx, f used to compute achieved CC	0.842	Approximate Actual Confidence Coefficient achieved by UTL	0.56
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	32.5	95% BCA Bootstrap UTL with 95% Coverage	32.5
95% UPL	32.5	90% Percentile	27.4
90% Chebyshev UPL	38.67	95% Percentile	28.83
95% Chebyshev UPL	47.01	99% Percentile	31.77
95% USL	32.5		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Radium-226/228

General Statistics

Total Number of Observations	16	Number of Distinct Observations	15
Minimum	3.72	First Quartile	6.53
Second Largest	13	Median	8.865
Maximum	14.3	Third Quartile	11.25

Mean	9.01	SD	3.076
Coefficient of Variation	0.341	Skewness	-0.0605
Mean of logged Data	2.135	SD of logged Data	0.382

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.524	d2max (for USL)	2.443

Normal GOF Test

Shapiro Wilk Test Statistic	0.963	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.844	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.146	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.248	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	16.77	90% Percentile (z)	12.95
95% UPL (t)	**14.57**	95% Percentile (z)	14.07
95% USL	16.53	99% Percentile (z)	16.17

Gamma GOF Test

A-D Test Statistic	0.377	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.74	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.17	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.215	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	8.115	k star (bias corrected MLE)	6.635
Theta hat (MLE)	1.11	Theta star (bias corrected MLE)	1.358
nu hat (MLE)	259.7	nu star (bias corrected)	212.3
MLE Mean (bias corrected)	9.01	MLE Sd (bias corrected)	3.498

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	15.76	90% Percentile	13.68

95% Hawkins Wixley (HW) Approx. Gamma UPL	15.99	95% Percentile	15.43
95% WH Approx. Gamma UTL with 95% Coverage	19.42	99% Percentile	19.07
95% HW Approx. Gamma UTL with 95% Coverage	19.96		
95% WH USL	18.98	95% HW USL	19.48

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.935	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.906	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.168	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.196	Data appear Lognormal at 10% Significance Level

Data appear Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	22.19	90% Percentile (z)	13.81
95% UPL (t)	16.87	95% Percentile (z)	15.86
95% USL	21.52	99% Percentile (z)	20.58

Nonparametric Distribution Free Background Statistics

Data appear Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	16	95% UTL with 95% Coverage	14.3
Approx, f used to compute achieved CC	0.842	Approximate Actual Confidence Coefficient achieved by UTL	0.56
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	14.3	95% BCA Bootstrap UTL with 95% Coverage	14.3
95% UPL	14.3	90% Percentile	12.35
90% Chebyshev UPL	18.52	95% Percentile	13.33
95% Chebyshev UPL	22.83	99% Percentile	14.11
95% USL	14.3		

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.

Selenium

General Statistics

Total Number of Observations	16	Number of Distinct Observations	16
Minimum	3.4	First Quartile	4.173
Second Largest	29	Median	5.345
Maximum	38	Third Quartile	11.24
Mean	11.05	SD	11.59
Coefficient of Variation	1.049	Skewness	1.445
Mean of logged Data	1.999	SD of logged Data	0.851

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.524	d2max (for USL)	2.443

Normal GOF Test

Shapiro Wilk Test Statistic	0.659	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.844	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.408	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.248	Data Not Normal at 1% Significance Level	

Data Not Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	40.31	90% Percentile (z)	25.9
95% UPL (t)	31.99	95% Percentile (z)	30.12
95% USL	39.37	99% Percentile (z)	38.01

Gamma GOF Test

A-D Test Statistic	2.256	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.757	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.369	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.219	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.383	k star (bias corrected MLE)	1.165

Theta hat (MLE)	7.993	Theta star (bias corrected MLE)	9.486
nu hat (MLE)	44.24	nu star (bias corrected)	37.28
MLE Mean (bias corrected)	11.05	MLE Sd (bias corrected)	10.24

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	32.91	90% Percentile	24.5
95% Hawkins Wixley (HW) Approx. Gamma UPL	33.18	95% Percentile	31.38
95% WH Approx. Gamma UTL with 95% Coverage	49.49	99% Percentile	47.17
95% HW Approx. Gamma UTL with 95% Coverage	51.84		
95% WH USL	47.39	95% HW USL	49.41

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.752	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.906	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.322	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.196	Data Not Lognormal at 10% Significance Level	

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	63.28	90% Percentile (z)	21.98
95% UPL (t)	34.37	95% Percentile (z)	29.94
95% USL	59.08	99% Percentile (z)	53.48

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order	16	95% UTL with 95% Coverage	38
Approx, f used to compute achieved CC	0.842	Approximate Actual Confidence Coefficient achieved by UTL	0.56
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	38	95% BCA Bootstrap UTL with 95% Coverage	38
95% UPL	38	90% Percentile	28
90% Chebyshev UPL	46.89	95% Percentile	31.25

95% Chebyshev UPL	63.13	99% Percentile	36.65
95% USL	**38**		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation	ProUCL 5.2 11/8/2023 5:26:09 PM
From File	Williams_New_FGD_Pond_Data_Summary_Table_8_21_2023_JC_g.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

Arsenic

General Statistics

Total Number of Observations	16	Number of Missing Observations	0
Number of Distinct Observations	13		
Number of Detects	12	Number of Non-Detects	4
Number of Distinct Detects	12	Number of Distinct Non-Detects	1
Minimum Detect	5.02	Minimum Non-Detect	6.3
Maximum Detect	8.75	Maximum Non-Detect	6.3
Variance Detected	1.699	Percent Non-Detects	25%
Mean Detected	7.062	SD Detected	1.304
Mean of Detected Logged Data	1.938	SD of Detected Logged Data	0.196

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.524	d2max (for USL)	2.443

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.909	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.805	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.207	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.281	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	6.6	KM SD	1.347
95% UTL95% Coverage	10	**95% KM UPL (t)**	**9.035**
90% KM Percentile (z)	8.327	95% KM Percentile (z)	8.817
99% KM Percentile (z)	9.735	95% KM USL	9.892

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	6.084	SD	2.075
95% UTL95% Coverage	11.32	95% UPL (t)	9.834
90% Percentile (z)	8.743	95% Percentile (z)	9.497
99% Percentile (z)	10.91	95% USL	11.15

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	0.562	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.731	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.223	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.245	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)	29.81	k star (bias corrected MLE)	22.41
Theta hat (MLE)	0.237	Theta star (bias corrected MLE)	0.315
nu hat (MLE)	715.5	nu star (bias corrected)	537.9
MLE Mean (bias corrected)	7.062		
MLE Sd (bias corrected)	1.492	95% Percentile of Chisquare (2kstar)	61.46

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	4.691	Mean	6.645
Maximum	8.75	Median	6.605
SD	1.366	CV	0.206
k hat (MLE)	24.93	k star (bias corrected MLE)	20.3
Theta hat (MLE)	0.267	Theta star (bias corrected MLE)	0.327
nu hat (MLE)	797.8	nu star (bias corrected)	649.5
MLE Mean (bias corrected)	6.645	MLE Sd (bias corrected)	1.475
95% Percentile of Chisquare (2kstar)	56.46	90% Percentile	8.591
95% Percentile	9.242	99% Percentile	10.55

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	10.63	10.72	95% Approx. Gamma UPL	9.34	9.375
95% Gamma USL	10.48	10.56			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	6.6	SD (KM)	1.347
Variance (KM)	1.815	SE of Mean (KM)	0.354
k hat (KM)	24	k star (KM)	19.54
nu hat (KM)	767.9	nu star (KM)	625.3
theta hat (KM)	0.275	theta star (KM)	0.338
80% gamma percentile (KM)	7.813	90% gamma percentile (KM)	8.572
95% gamma percentile (KM)	9.233	99% gamma percentile (KM)	10.56

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

WH	HW	WH	HW

95% Approx. Gamma UTL with 95% Coverage	10.49	10.57	95% Approx. Gamma UPL	9.232	9.262
95% KM Gamma Percentile	8.962	8.983	95% Gamma USL	10.35	10.42

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.888	**Shapiro Wilk GOF Test**
10% Shapiro Wilk Critical Value	0.883	Detected Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.217	**Lilliefors GOF Test**
10% Lilliefors Critical Value	0.223	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	6.643	Mean in Log Scale	1.873
SD in Original Scale	1.364	SD in Log Scale	0.208
95% UTL95% Coverage	11	95% BCA UTL95% Coverage	8.75
95% Bootstrap (%) UTL95% Coverage	8.75	95% UPL (t)	9.478
90% Percentile (z)	8.497	95% Percentile (z)	9.164
99% Percentile (z)	10.56	95% USL	10.82

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	1.866	95% KM UTL (Lognormal)95% Coverage	10.84
KM SD of Logged Data	0.205	95% KM UPL (Lognormal)	9.361
95% KM Percentile Lognormal (z)	9.055	95% KM USL (Lognormal)	10.67

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	6.084	Mean in Log Scale	1.74
SD in Original Scale	2.075	SD in Log Scale	0.391
95% UTL95% Coverage	15.29	95% UPL (t)	11.55
90% Percentile (z)	9.408	95% Percentile (z)	10.84
99% Percentile (z)	14.16	95% USL	14.82

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	16	95% UTL with95% Coverage	8.75
Approx, f used to compute achieved CC	0.842	Approximate Actual Confidence Coefficient achieved by UTL	0.56
Approximate Sample Size needed to achieve specified CC	59	95% UPL	8.75
95% USL	8.75	95% KM Chebyshev UPL	12.65

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	16	Number of Missing Observations	0
Number of Distinct Observations	13		
Number of Detects	12	Number of Non-Detects	4
Number of Distinct Detects	11	Number of Distinct Non-Detects	2
Minimum Detect	0.171	Minimum Non-Detect	1.3
Maximum Detect	0.458	Maximum Non-Detect	6.3
Variance Detected	0.00554	Percent Non-Detects	25%
Mean Detected	0.28	SD Detected	0.0744
Mean of Detected Logged Data	-1.303	SD of Detected Logged Data	0.262

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.524	d2max (for USL)	2.443

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.898	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.805	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.215	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.281	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	0.28	KM SD	0.0712
95% UTL95% Coverage	0.46	**95% KM UPL (t)**	**0.409**
90% KM Percentile (z)	0.372	95% KM Percentile (z)	0.398
99% KM Percentile (z)	0.446	95% KM USL	0.454

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.685	SD	0.972
95% UTL95% Coverage	3.139	95% UPL (t)	2.442
90% Percentile (z)	1.931	95% Percentile (z)	2.285
99% Percentile (z)	2.947	95% USL	3.061

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	0.517	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.731	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.236	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.245	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)	16.14	k star (bias corrected MLE)	12.16
Theta hat (MLE)	0.0174	Theta star (bias corrected MLE)	0.0231
nu hat (MLE)	387.4	nu star (bias corrected)	291.9
MLE Mean (bias corrected)	0.28		
MLE Sd (bias corrected)	0.0804	95% Percentile of Chisquare (2kstar)	36.81

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	0.171	Mean	0.28
Maximum	0.458	Median	0.271

SD	0.0663	CV	0.237
k hat (MLE)	19.74	k star (bias corrected MLE)	16.08
Theta hat (MLE)	0.0142	Theta star (bias corrected MLE)	0.0174
nu hat (MLE)	631.8	nu star (bias corrected)	514.7
MLE Mean (bias corrected)	0.28	MLE Sd (bias corrected)	0.0697
95% Percentile of Chisquare (2kstar)	46.4	90% Percentile	0.372
95% Percentile	0.403	99% Percentile	0.467

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	0.471	0.475	95% Approx. Gamma UPL	0.408	0.41
95% Gamma USL	0.463	0.467			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.28	SD (KM)	0.0712
Variance (KM)	0.00508	SE of Mean (KM)	0.0215
k hat (KM)	15.48	k star (KM)	12.62
nu hat (KM)	495.5	nu star (KM)	403.9
theta hat (KM)	0.0181	theta star (KM)	0.0222
80% gamma percentile (KM)	0.344	90% gamma percentile (KM)	0.385
95% gamma percentile (KM)	0.421	99% gamma percentile (KM)	0.496

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	0.487	0.492	95% Approx. Gamma UPL	0.419	0.42
95% KM Gamma Percentile	0.404	0.405	95% Gamma USL	0.479	0.484

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.923	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.883	Detected Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.255	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.223	Data Not Lognormal at 10% Significance Level	

Detected Data appear Approximate Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.279	Mean in Log Scale	-1.303
SD in Original Scale	0.0662	SD in Log Scale	0.233
95% UTL95% Coverage	0.49	95% BCA UTL95% Coverage	0.458
95% Bootstrap (%) UTL95% Coverage	0.458	95% UPL (t)	0.414
90% Percentile (z)	0.366	95% Percentile (z)	0.399
99% Percentile (z)	0.468	95% USL	0.48

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.303	95% KM UTL (Lognormal)95% Coverage	0.511
KM SD of Logged Data	0.251	95% KM UPL (Lognormal)	0.427
95% KM Percentile Lognormal (z)	0.41	95% KM USL (Lognormal)	0.501

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.685	Mean in Log Scale	-0.888
SD in Original Scale	0.972	SD in Log Scale	0.877
95% UTL95% Coverage	3.761	95% UPL (t)	2.006
90% Percentile (z)	1.266	95% Percentile (z)	1.74
99% Percentile (z)	3.163	95% USL	3.504

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	16	95% UTL with95% Coverage	6.3
Approx, f used to compute achieved CC	0.842	Approximate Actual Confidence Coefficient achieved by UTL	0.56
Approximate Sample Size needed to achieve specified CC	59	95% UPL	6.3
95% USL	6.3	95% KM Chebyshev UPL	0.6

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data

represents a background data set and when many onsite observations need to be compared with the BTV.

Molybdenum

General Statistics

Total Number of Observations	16	Number of Missing Observations	0
Number of Distinct Observations	14		
Number of Detects	10	Number of Non-Detects	6
Number of Distinct Detects	10	Number of Distinct Non-Detects	4
Minimum Detect	1.1	Minimum Non-Detect	0.979
Maximum Detect	3.27	Maximum Non-Detect	13
Variance Detected	0.625	Percent Non-Detects	37.5%
Mean Detected	2.106	SD Detected	0.791
Mean of Detected Logged Data	0.674	SD of Detected Logged Data	0.409

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.524	d2max (for USL)	2.443

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.896	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.781	Detected Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.204	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.304	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	1.856	KM SD	0.781
95% UTL95% Coverage	3.826	**95% KM UPL (t)**	**3.266**
90% KM Percentile (z)	2.856	95% KM Percentile (z)	3.139
99% KM Percentile (z)	3.671	95% KM USL	3.763

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	2.352	SD	1.82
95% UTL95% Coverage	6.946	95% UPL (t)	5.641

90% Percentile (z)	4.684	95% Percentile (z)	5.346
99% Percentile (z)	6.586	95% USL	6.799

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	0.62	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.728	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.224	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.267	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)	7.178	k star (bias corrected MLE)	5.092
Theta hat (MLE)	0.293	Theta star (bias corrected MLE)	0.414
nu hat (MLE)	143.6	nu star (bias corrected)	101.8
MLE Mean (bias corrected)	2.106		
MLE Sd (bias corrected)	0.933	95% Percentile of Chisquare (2kstar)	18.56

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	0.617	Mean	1.8
Maximum	3.27	Median	1.546
SD	0.801	CV	0.445
k hat (MLE)	5.097	k star (bias corrected MLE)	4.183
Theta hat (MLE)	0.353	Theta star (bias corrected MLE)	0.43
nu hat (MLE)	163.1	nu star (bias corrected)	133.9
MLE Mean (bias corrected)	1.8	MLE Sd (bias corrected)	0.88
95% Percentile of Chisquare (2kstar)	16.03	90% Percentile	2.98
95% Percentile	3.449	99% Percentile	4.448

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	4.563	4.729	95% Approx. Gamma UPL	3.55	3.613
95% Gamma USL	4.441	4.592			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.856	SD (KM)	0.781
Variance (KM)	0.609	SE of Mean (KM)	0.228
k hat (KM)	5.652	k star (KM)	4.634
nu hat (KM)	180.9	nu star (KM)	148.3
theta hat (KM)	0.328	theta star (KM)	0.4
80% gamma percentile (KM)	2.516	90% gamma percentile (KM)	3.01
95% gamma percentile (KM)	3.462	99% gamma percentile (KM)	4.421

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	4.402	4.518	95% Approx. Gamma UPL	3.481	3.52
95% KM Gamma Percentile	3.292	3.32	95% Gamma USL	4.291	4.396

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.873	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.869	Detected Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.236	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.241	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	1.803	Mean in Log Scale	0.499
SD in Original Scale	0.781	SD in Log Scale	0.443
95% UTL95% Coverage	5.044	95% BCA UTL95% Coverage	3.27
95% Bootstrap (%) UTL95% Coverage	3.27	95% UPL (t)	3.671
90% Percentile (z)	2.908	95% Percentile (z)	3.416

99% Percentile (z)	4.621	95% USL	4.867

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.528	95% KM UTL (Lognormal)95% Coverage	4.979
KM SD of Logged Data	0.427	95% KM UPL (Lognormal)	3.666
95% KM Percentile Lognormal (z)	3.421	95% KM USL (Lognormal)	4.81

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	2.352	Mean in Log Scale	0.604
SD in Original Scale	1.82	SD in Log Scale	0.737
95% UTL95% Coverage	11.74	95% UPL (t)	6.921
90% Percentile (z)	4.7	95% Percentile (z)	6.142
99% Percentile (z)	10.15	95% USL	11.06

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	16	95% UTL with95% Coverage	13
Approx, f used to compute achieved CC	0.842	Approximate Actual Confidence Coefficient achieved by UTL	0.56
Approximate Sample Size needed to achieve specified CC	59	95% UPL	13
95% USL	13	95% KM Chebyshev UPL	5.363

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	MW-FGD-23	22,500	1,790,000	4,210	< 0.330	6.56	369	7,040
BL-2	MW-FGD-23	25,800	1,900,000	4,150	< 0.660	6.25	604	8,510
BL-3	MW-FGD-23	19,000	1,400,000	3,500	< 0.050	6.52	270	5,600
BL-4	MW-FGD-23	24,000	2,100,000	3,900	0.280	6.00	310	6,100
BL-5	MW-FGD-23	25,600	1,940,000	3,830	< 0.660	5.73	330	7,700
BL-6	MW-FGD-23	27,400	1,970,000	4,380	0.938 J	6.09	420	9,850
BL-7	MW-FGD-23	55,500(1)	4,030,000(1)	4,320	< 0.330	5.59	371	8,350
BL-8	MW-FGD-23	25,100	1,700,000	3,790 J+	0.220	5.80	312	7,330
BL-1	MW-FGD-24	23,600	1,680,000	4,460	< 0.660	6.54	719	6,680
BL-2	MW-FGD-24	22,700	1,620,000	3,370	< 0.660	6.29	563	6,930
BL-3	MW-FGD-24	25,000	1,600,000	3,400	< 0.130	6.50	390	5,800
BL-4	MW-FGD-24	19,000	1,400,000	2,700	< 0.130	6.35	360	5,500
BL-5	MW-FGD-24	21,600	1,600,000	3,170	< 0.660	6.26	445	5,470
BL-6	MW-FGD-24	22,600	1,580,000	3,660	< 0.660	6.21	543	6,830
BL-7	MW-FGD-24	44,400(1)	3,190,000(1)	3,290	< 0.330	6.20	498	6,080
BL-8	MW-FGD-24	22,800	1,710,000	3860 J+	0.218	6.07	428	7,120

(1) = Results were removed from the data set as outliers.
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.
J+ Estimated concentration, the result may be biased high.
< Result less than the indicated detection limit.

References

OBG 2017. *Statistical Analysis Plan* – SCE&G Williams Station New FGD Pond, Goose Creek, South Carolina. O'Brein & Gere Inc. (OBG), October 17, 2017.

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